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ON MODERN METHODS OF DIAGNOSIS IN GASTRIC AFFECTIONS.

BY

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OF late years many new procedures have been introduced with the object of improving our methods of diagnosis in gastric affections by direct analysis of the gastric juice, and of thus enabling us by the light of more exact knowledge of the morbid process to interfere with greater precision and success. The methods employed—which, roughly speaking, consist in the withdrawal of a portion of the stomach-contents during various stages of digestion, without risk or undue discomfort to the patient, and subsequent analysis of them by special tests—have already materially added to our knowledge of the processes that normally take place in gastric digestion and of their

pathological derangements. To be useful in ordinary clinical work, the tests employed must be capable of easy application, and be at the same time fairly accurate. The object of the present paper is, to show that by the selection and application of the more important and trustworthy of the tests devised valuable aid in diagnosis and treatment may be obtained without the expenditure of much time or labour, and that these tests may be carried out in ordinary out-patient work. Under such conditions the more elaborate procedures are hardly possible.

By the labours of Ewald, Boas, von Jaksch, Mathieu, and others, it has been conclusively determined that hydrochloric acid is the essential acid of the gastric juice. It is not, however, secreted at once on the ingestion of food; for at the commencement of digestion, during a period which varies between twenty and fifty minutes, lactic acid is the only acid present, probably derived partly from the meat and partly from the carbohydrates of the food. Then hydrochloric acid appears, and both acids are present together for a time, the lactic acid disappearing at from sixty to ninety minutes after ingestion of food. Hydrochloric should be the only acid present at from ninety minutes to two hours, and digestion is then most actively proceeding. It disappears when the stomach contents pass into the duodenum, and is not found in the stomach in the intervals between meals. Moreover, its secretion varies with the kind of food ingested: the presence of carbohydrates in excess retards its appearance; on a mixed diet it should be found at the end of from thirty to fifty minutes after a meal, and after a meal of cooked albumen only, *e.g.* white of egg, it sometimes appears as early as fifteen minutes. In every case hydro-

chloric acid should be the only one present at the end of ninety minutes, and the activity of the gastric juice is in close proportion to the amount of it secreted. The method of procedure which I have found capable of being carried out in a reasonably short time, and from which we may obtain a fair knowledge of the events taking place during gastric digestion, is the following:

The patient should take a "test-meal," which may consist of a little weak tea and bread and butter, with or without an egg. Milk is not to be recommended, as it has the property of forming compounds with hydrochloric acid. A soft India-rubber nasal tube is then passed, either through the mouth or through the nose, into the stomach. With the palm of the hand pressure is made over the patient's stomach, and he is directed to cough. It is most convenient that he should be lying down, with his head turned to one side. After coughing a few times, a little of the gastric juice flows out of the end of the tube, and is collected in a flask. In cases where there is vomiting after meals, the vomit may sometimes be used for analysis. The fluid thus obtained is filtered; the deposit examined under the microscope, and the acidity of the filtrate determined. Prof. v. Jaksch thinks it is better to use the unfiltered gastric contents, as he found some loss of acidity took place during filtration. To determine the acidity, 10 c.cc. of the filtered gastric contents are taken; two or three drops of phenol-phthalein, which strikes a lively red colour in the presence of free alkali, added; and then a deci-normal solution of sodium hydrate run in from a burette. 1 c.c. of the latter neutralises .00364 gramme pure hydrochloric acid. Whilst the deci-normal solution is added the fluid must be constantly stirred, and when the red colour appears the

number of c.cc. of the deci-normal solution used is read off, and the total acidity thus calculated in terms of hydrochloric acid. Next we test for hydrochloric, lactic, and butyric acids.

The presence of hydrochloric acid can be determined by several colour reactions. Those that seem most reliable, and the only ones with which I am personally acquainted, are Günzburg's phloro-glucin test, the tropæolin, Congo-red, and benzo-purpurin 6 B tests. Of these, I no longer use tropæolin, as it is not so delicate as the others. Test-papers may be made by soaking strips of filter-paper in saturated solutions of Congo-red and benzo-purpurin 6 B. Hydrochloric acid gives a blackish-blue, or blue, colouration with Congo-red; it is open to the fallacy that the organic acids, if present in any quantity, give also a deep brownish-black colouration, difficult to distinguish from that due to hydrochloric acid; but, so far as I have observed, this has never the blue tinge of the latter reaction. With benzo-purpurin 6 B, hydrochloric acid gives a dark or light violet colour, according to the amount present. The organic acids here also give a brownish black colour, which, however, may be dispelled by shaking up the paper in a test-tube with sulphuric ether (which must not itself be acid), whereas the colouration due to hydrochloric acid is unaffected. The presence of peptone, serum-albumin, or acid salts is said not to interfere with this reaction, while they certainly do hinder that of Congo-red. Günzburg's reagent is composed of 2 grms. phloro-glucin and 1 grm. vanillin in 100 parts absolute alcohol. In using it, a few drops of the gastric juice and an equal quantity of the reagent are put in a porcelain dish, and gently heated over a spirit-lamp. As evaporation takes place, a beautiful

rosy-red colour appears on the dish. Care must be taken that overheating or charring of the mixture does not occur, as in that case the reaction does not appear. This test is very delicate, giving the reaction with $\frac{1}{20}$ hydrochloric acid in 1000 parts, and seems the most trustworthy if a little care is exercised in carrying it out; the reaction is not interfered with by the presence of peptone, albumin, or acid salts. Inorganic salts and chloride of calcium, 2 per cent., will give the same reaction, but are never present in sufficient quantities in the gastric juice. The only practical source of error, according to Günzburg is, that very rarely lactate or acetate of soda may be present in sufficient quantity to lead to confusion.

Before testing for hydrochloric, the lactic acid present may be removed by agitating the gastric juice with ether, subsequently decanting off the ether, evaporating it, and dissolving the residue in water. Uffelmann's reagent is a distinguishing test; it must be freshly made by adding one drop of liq. ferri perchloridi to a mixture of 10 c.cc. of a 4 per cent. solution of carbolic acid and 20 c.cc. of distilled water. This gives an amethyst-blue liquid, which is bleached on the addition of hydrochloric, turned yellow by lactic, and ashen-grey by butyric acid. Butyric acid is also detected by its characteristic odour.

The question further comes in as to whether the acidity is due mainly to free acid, to acid salts, or to acids in organic combination. Leo has devised a means of determining whether the acidity is due to free acid or to acid salts, which depends upon the fact that dry calcium carbonate fully neutralizes free acids, but does not decompose acid phosphates. The method is thus described by Prof. D. J. Hamilton: "A little of the liquid, a few drops, is placed in a watch-glass; a pinch of powdered

calcium carbonate is added, and mixed with a glass rod. The reaction is then taken with blue litmus paper, and compared with that of the original liquid. If the litmus is not coloured red, we have to do with free acid only; if the reddening of the litmus has become less intense than in the original liquid, free acids and acid salts have been simultaneously present; and if the reaction does not change, acid salts have been the exclusive source of the acidity."[1] Lastly, the gastric contents may be tested for the presence of peptones, propeptone, albumin, and sugar. Small cubes of boiled white of egg may be placed in the gastric juice, and kept at the body temperature, in order to test the digestive power; if it is found to be deficient, pepsin, hydrochloric acid, or pepsin and hydrochloric acid, may be added to fresh portions with white of egg, and the digestive agent in default thus determined. The quantitative estimation of hydrochloric acid is too long and difficult a process to be useful for ordinary clinical work; rough quantitative estimations according to the degree of colouration with the above reagents have been devised, but are not sufficiently accurate to be of value. With a little practice the above tests, though they seem long when described, can be carried out in a reasonable time. The whole process may be summed up thus:—

(1) A portion of the gastric contents is removed two hours after a meal, and filtered.

(2) The total acidity of the filtrate is estimated, and it is determined whether the acidity is due to free acid, acid salts, or both combined.

[1] *British Medical Journal*, Vol. II., 1890, p. 323.

(3) The presence of hydrochloric acid is shown by benzo-purpurin and Günzburg's reagent.

(4) Lactic and butyric acids tested for by Uffelmann's reagent, by odour, &c.

(5) Determination of digestive potency of the gastric juice.

Mathieu[1] has recently made some interesting observations on the determination of the total acidity of the gastric contents by means of phenol-phthalein, and by another body tournesol, which also shows a change of colour in presence of free alkali. Phenol-phthalein always shows an excess of acidity over tournesol, due to the fact that peptone, acid albumin, and leucin act upon it, whilst they do not affect the latter. Organic acids also show the same difference, and this difference between the two acidities is augmented in direct proportion to the total acidity. He concludes that the difference in acidity is not due to azotised bodies alone, and that the organic acids not only exist in free state, but also in combination. Hayem and Winter (quoted by Mathieu), from the result of their investigations upon the gastric contents, are of opinion that the changes produced in the food by the gastric juice are preparatory to those that take place in the intestine, rather than of intrinsic importance in themselves; that the stomach restrains and moderates fermentative processes; and that the quantity of peptone produced is of secondary importance. Whilst investigating the chemical changes, we must not forget the very important part played by the motor functions of the stomach, and we should complete our studies by determining the time after a meal at which the viscus

[1] *Gaz. des hôpitaux*, February 17th, 1891.

empties itself. This should take place within five or six hours after a meal. There are variations within the limits of health, but longer than six hours is probably always pathological; fermentative changes, with the development of lactic and butyric acids, then take place, and after seven hours these are the only changes that occur.[1] In cases of undue retention the stomach undergoes dilatation, and this can be satisfactorily determined by palpation, which gives a succussion splash over the stomach-area, and its limits can with a little care and practice be thus accurately defined. If the lower border of the stomach thus determined passes beyond a line drawn from the umbilicus to the salient angle of the left false ribs in the intervals between meals, or if at any time after a meal it passes below this line, a pathological degree of distension is present. At the same time the area of stomach-resonance over the lower ribs may extend upwards beyond the sixth rib, and to the left beyond the normal limits.

Or we may make use of salol (Ewald's test) to determine the time at which the food passes out of the stomach. This body is unchanged in the stomach, but broken up in the duodenum into phenol and salicylic acid; the latter at once passes into the urine, where it gives the characteristic deep-purple colour with perchloride of iron. Ewald thought that the time of its first appearance in the urine gave certain information as to the motor power of the gastric muscle; but this time has been shown to be very variable, and the test must be used in another way. According to Huber, the reaction should normally *disappear* from the urine twenty-six hours after ingestion, while in cases of impaired

[1] Bouchard, *Sur les Auto-intoxications*, Chap. xix.

mobility it may still be obtained after thirty to thirty-six hours.

Rossbach[1] has recently shown that in dogs the contents of the stomach are not ejected from time to time as digestion proceeds, as is generally stated in the text books, but that the pylorus remains firmly closed until from four to six hours have elapsed and then relaxes, and the stomach-contents are ejected in four or five successive squirts; active contractions of the pyloric end of the stomach playing an important part in the process.

The most important facts learnt from the above methods of clinical investigation are as follows: The pathological variations of acidity may be divided into two groups—excess and deficiency of hydrochloric acid.

First, hydrochloric acid may be present in excess only during digestion; the symptoms of dyspepsia coming on in from thirty to sixty minutes after a meal, and consisting of acid regurgitations and epigastric pain.

Secondly, hydrochloric acid may be present in excess both during meals and in the intervals between them. In this case there is generally dilatation of the stomach, which Riegel thinks may arise from spasm of the pylorus, excited by the excessive acidity, hindering the outflow of the stomach-contents. The patients are anæmic and often emaciated; they suffer much from epigastric pains, flatulence, and sometimes from vomiting; especially characteristic are nocturnal attacks of severe pain, and often vomiting. The conditions may thus closely resemble cancer of the stomach.

According to Mathieu[2] the digestion of meat is

[1] *Deutsch. Archiv. f. klin. Med.*, 1890, Bd. xlvi. 276. Abstract *Int. Journ. Med. Sci.*, February, 1891.

[2] *Gaz. des hôpitaux*, February and April, 1888.

complete, of carbohydrates *nil*, in these cases: he states that the exaggerated secretion of hydrochloric acid may come on in "crises," with pain in the epigastrium, acid vomitings, and severe headache, and suggests that the "gastric crises" of tabes dorsalis are due to this affection of the stomach.

In a case of this acid dyspepsia with slight dilatation we have found the total acidity to be .4 per cent., instead of .1 or .2 per cent.

Thirdly, in round ulcer the quantity of hydrochloric acid is generally, but not invariably, increased: in a patient now under treatment, the total acidity is .3 per cent. In the acid dyspepsia of chlorosis, it is common to find some excess of hydrochloric acid in the gastric contents. These facts are significant when we remember that round ulcer is especially liable to occur in anæmic girls; possibly the excessive secretion of hydrochloric acid is the antecedent stage, and in the bloodless condition of the stomach-walls leads on to the formation of ulcer.

Besides hydrochloric, butyric and acetic acids may be in excess; but when this is the case, the amount of hydrochloric is generally deficient. The secretion of hydrochloric acid is deficient or absent in (1) cancer of the stomach, (2) atrophy of the mucous membrane, (3) sometimes in the continued fevers, (4) in dyspepsia nervosa, and (5) very occasionally in persons otherwise in apparent good health. The most frequent and important cases in which hydrochloric acid is absent from the stomach during digestion are those of cancer, and this fact often affords us valuable aid in diagnosis. Atrophy of the gastric mucous membrane is a rare condition; the diagnosis between cancer of the stomach and fever will

rarely be a matter of difficulty; there remain the cases where hydrochloric acid is absent from the gastric juice in apparent health. Hayem and Winter mention six cases of the latter class. One of this kind has recently come under my notice. The patient was a lad of sixteen, who complained that about an hour after meals he suffered from eructations of fluid which tasted and smelt like rotten eggs. He had no pain or vomiting, and seemed in good health. On examining the gastric juice, it gave only a very feeble acid reaction, and with the smallest possible trace of hydrochloric acid.

If the possible exceptions to the rule that the secretion of hydrochloric acid is absent in cases of cancer of the stomach be borne in mind, I do not think that they militate seriously against the value of this reaction as an aid to diagnosis in cases where the existence of cancer is uncertain, but seems probable. If hydrochloric acid is found absent after repeated examination at various stages of the digestive process, the presumption in favour of cancer is very strong. In eight cases of cancer of the stomach in which I examined the gastric contents on several occasions, in each case hydrochloric acid was uniformly absent. The following two cases illustrate the manner in which the absence of reaction was of great aid in diagnosis:

The first, a man of 77, fairly well nourished and of healthy appearance, had suffered for three months from epigastric pain and sickness after meals, and on one occasion from slight hæmatemesis. The epigastrium was tender; but it was difficult to explore it thoroughly, from the roundness of the thoracic cage, and the prominence of the lower ribs. We could never discover any tumour, nor was there any dulness over the stomach, which, more-

over, was at no time dilated. Hydrochloric acid was absent from the gastric juice. The man emaciated, grew slowly worse, and died in about two months. At the autopsy a cancerous growth was found at the cardiac end of the stomach, close to the entrance of the œsophagus, and, therefore, so placed that it could never have been felt during life.

The second patient, a man of 60 years of age, had for more than six months suffered from pains after food, and acid eructations; very occasionally he had vomited, but had never brought up blood. The stomach was moderately dilated, and repeated examination failed to show the presence of hydrochloric acid in the gastric contents. The pain and sickness were relieved by daily washing-out of the stomach with warm solution of boracic acid. He did not, however, entirely lose these symptoms, and recently dulness was detected over the right side of the epigastrium, where a small hard nodule can now be felt, undoubtedly of cancerous nature.

Whether hydrochloric acid is absent in the early stages of cancer of the stomach, I am unable to state from personal observation; that it is not necessary for the stomach-walls to be extensively infiltrated with new growth, the following case shows:

Sarah T., æt. 47, married, of healthy family; no children; no previous illness. She came under my care in September, 1890, and stated that the present illness began in January, 1890, with pains in hands and head. The pains after a time shifted to the left hypochondriac region, where they have since remained; she lost her appetite entirely, and became very weak. The pain was worse after meals; she was losing flesh, and suffered much from constipation. There had been no vomiting. The

patient was anæmic and emaciated. On examination the first sound of the heart was reduplicated at the apex; but otherwise the thoracic organs were healthy. The tongue was furred; the abdomen rather hollow; and on the right side, about two inches above and a little to the right of the umbilicus, was a small irregular and intensely hard lump, about two inches in its longest diameter, which was from above downwards. It was intensely tender, and moved freely with respiration. The stomach was not dilated, and there was no ascites. The gastric contents at no time contained hydrochloric, but a good deal of lactic and butyric acids. She died in about a fortnight; and for a few days before her death the stomach was enormously dilated, and she suffered much from vomiting. At the autopsy, a small nodule, of almost cartilaginous hardness was found at the pylorus, constricting the orifice; microscopic examination showed it to be a scirrhus growth. This case only came under observation very late in the disease, but it shows that the new growth may be very small and entirely limited to the pylorus, and yet hydrochloric acid may fail to be secreted. It is very difficult to see why such a limited growth should, even in the late stages, interfere with the secretion of hydrochloric acid; at an earlier stage it would probably not do so.

The diagnosis of gastric carcinoma is often a matter of great difficulty, and especially so in cases where there is dilatation of the stomach. This dilatation may arise from organic disease obstructing in some way the pyloric opening; or, on the other hand, it may be "simple"—that is to say, not due to organic disease, but from a functional weakness of the gastric walls. This latter is not an uncommon condition in both men and women,

and arises in many conditions, for instance, in persons who overload the stomach by too heavy and too frequent meals, in the course of the continued fevers or during convalescence from acute diseases, in alcoholism, neurasthenia, phthisis, severe anæmia, chronic rheumatoid arthritis, and other debilitated states. Bouchard believes that there is an hereditary weakness of the stomach-walls in some cases. If we are, however, aware of its occurrence under such circumstances, the diagnosis can generally be made with certainty. It is, however, in conditions where dilatation exists together with a tumour of some kind in the neighbourhood of the stomach that real difficulty arises. The cases that most nearly simulate cancer of the stomach are those of cancer of the head of the pancreas and cancer of the gall-bladder, either of which may compress the pylorus and so cause dilatation of the stomach. The same thing may more rarely happen in cases of new growth in the left lobe of the liver; and, lastly, may be produced by the thickening and contraction around an ulcer seated close to the pylorus, either in the stomach or in the duodenum. In these cases of ulcer, the diagnosis from ordinary physical signs and symptoms alone may be impossible, especially when the patient is in late middle-life. Duodenal ulcer in this situation occurs most commonly after the age of thirty, and may be present in elderly people. At an autopsy recently, I found a simple ulcer of the duodenum in a man of sixty years of age, which was surrounded by a mass of inflammatory new formation, causing some obstruction of the pylorus with dilatation of the stomach, but apparently not sufficient to give rise to symptoms during life more urgent than those of a moderate degree of dyspepsia.

The following is a good instance of the difficulties of

distinction between gastric ulcer in the region of the pylorus, and cancer in the same situation:

William B., a labourer, æt. 45, had attended as an out-patient several times during the previous two years, for severe pains in the stomach, and vomiting after meals. The pain was always localised over the right side of the epigastrium, came on about an hour after eating, and was to some extent relieved when the meal was vomited. There had never been any hæmatemesis. Beyond severe dyspepsia, for many years he had had no bad illness, and had always been temperate. On July 8th, 1887, he came to me with an aggravation of the pain and vomiting, and on examination there was then found dulness over the right epigastric region, which was fuller than the left, and on palpation in this situation an ill-defined rather hard tumour, about the size of a large orange and excessively tender was felt. The stomach was moderately dilated. On milk diet, with the administration of opium and bismuth, the pain was partly relieved; but on September 1st he was taken suddenly ill with intense pain in the stomach, and for the first time vomited a large quantity of blood. He died in a state of collapse some twelve hours later. At the autopsy acute general peritonitis was present. The stomach at the pyloric end was the seat of a tumour, about the size of the two fists, composed of firm, hard, pale tissue. Two large deep ulcers, with ragged walls, were found in this tumour, and at the base of one of these perforation into the peritoneal cavity had occurred, and hemorrhage had taken place from it. The surrounding organs were matted together by adhesions, the pylorus was very much narrowed, and the stomach dilated. The tumour appeared to consist of inflammatory new formation thrown out around the ulcers,

and careful microscopical examination of portions from several parts of the tumour showed that this was its structure.

If, as seems at present to be the case, the amount of hydrochloric acid secreted is generally increased and always present in cases of ulcer, and is absent in carcinoma, we have in this test a most valuable diagnostic agent in cases such as the above, where the distinction on other grounds is exceedingly difficult; and it will similarly be of service in those cases of cancer of the head of the pancreas or of other viscera where new growth in the stomach is closely simulated. I am not contending that in all patients with dyspepsia, or in whom dyspeptic symptoms occur, a portion of the gastric contents should be removed and analysed according to the method detailed above; but I think that it should be done where new growth or ulcer is suspected, and that when dyspepsia does not yield to treatment we may often obtain valuable information from the procedure as to what ingredient of the gastric juice is deficient or in excess, and thus be enabled to modify the treatment accordingly, and so give relief. In conclusion, it may be well to add that by using a soft India-rubber tube without a stiffened end—such as that sold under the name of Jaques' patent, which answers the purpose perfectly well—there is no risk of doing harm even in cases of ulcer.

CASE OF SEPTIC ENDOCARDITIS WITH CEREBRAL EMBOLISM.

BY

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BESSIE E., aged ten years, was admitted to the Children's Hospital on March 25th, 1890, under the care of Dr. Roué, whom I thank for permission to publish the case.

For five or six weeks previous to admission the patient had suffered from pain in both shoulders, knees, and ankles—severe enough for her to keep to the sofa.

On admission, patient was free from pain in the joints; and no joint effusion or tenderness could be detected. On examining the chest, the apex-beat was felt in the fourth left space, just outside the nipple-line; and on auscultation, a mitral systolic bruit was heard. The lungs, abdomen, and urine, were normal. The temperature was 99.2°.

The diagnosis was rheumatic arthritis and endocarditis.

The history of the case up to July 14th can be quickly passed over. The patient, in spite of all treatment, had recurring attacks of subacute arthritis of various joints, and became, as time went on, more and more anæmic. The only important point to notice is, that on April 19th there was suddenly pain in the splenic region; but on

palpation, no enlargement or tenderness of the spleen could be made out.

At the beginning of July, on Dr. Roué going away, the patient came under my care.

On July 10th a double pericardial friction-sound was heard over the innermost inch of the second left intercostal space: this persisted, but no physical signs of pericardial effusion ever developed.

In the evening of July 14th the patient suddenly screamed out and became unconscious. No convulsive movements were seen. On the next day the patient was partially, and on the following completely, conscious. On examination, it was found that the condition was as follows:—Eyes normal in direction, and can be freely moved. Complete right motor hemiplegia—face, tongue, arm, and leg. Patient cannot speak. There is no anæsthesia of the right side. Patient understands what is said, and can see quite well with both eyes. The skin reflexes are normal and equal on both sides of the body: on the right side the tendon-jerks are increased, and there is ankle- but no rectus-clonus. In the fundus of the left eye two hemorrhages are seen—one, to the inner and lower side of the disk, round and dark-red; the other, larger, to the outer side of the disk, round with a white centre: the edges of the disk are not clear. In the fundus of the right eye there are no hemorrhages: the edges of the disk are not clear. These appearances, it may be said, persisted up to the time of death. No definite optic neuritis developed.

The temperature, which up to July 14th had generally been normal in the morning, but going up to 101° and occasionally to 102° in the evening, went up to 101.8° at the time of the attack, and never became normal again, generally varying from 100°–101°.

The discovery of this retinal hemorrhage with a white centre led to the opinion that septic embolism of a retinal artery had occurred, and this to the supposition that the rheumatic had passed on into a septic endocarditis with subsequent septic embolism of the left middle cerebral artery. As to the seat of embolism in the brain, two suppositions were open—embolism either of the first three cortical branches of the left middle cerebral, or of its central branches leading to lesion of the anterior two-thirds of the posterior limb of the internal capsule.

The further progress of the case may be very shortly described. The right hemiplegia persisted, and in a couple of weeks slight rigidity of the right arm was added. The motor aphasia also persisted: the child never said more than "No" and "Very thirsty" up to the time of her death. At the beginning of August the patient began to move the right leg a little. On August 10th she suddenly became unconscious, with clonic convulsions of the left leg and right arm and leg, lasting a few minutes, and followed by rigidity in all the limbs. Three similar attacks of clonic convulsions recurred, and the child died in a couple of hours without regaining consciousness.

On making a *post mortem* examination on the next day, I found the following interesting appearances:—In the abdomen, the intestines were healthy, as were also the liver and both kidneys. In the spleen was a small old infarct. In the thorax, the lungs were normal: there were ʒii. of clear yellow fluid in the pericardium, with a very slight deposit of lymph on the anterior surface of the right auricle and opposite surface of visceral layer of pericardium (this corresponded in position to the friction-sound heard during life); elsewhere the pericardium was normal. The right side of the heart was normal: on the left side,

the left ventricle was somewhat dilated; the aortic valves were normal. On the mitral valves, which were incompetent, were large vegetations, but with no positive sign of ulcerative processes. On the posterior surface of the dilated left auricle was a patch, as large as a shilling, of ulcerative endocarditis. (The heart, it may be mentioned, is in the museum of the Children's Hospital.)

On removing the brain, there was seen a purple blood-clot under the pia mater over the inferior vermiform process of the cerebellum. The cerebral cortex was yellow in colour; scattered generally in the pia-arachnoid over the external surface of both hemispheres were spots of yellowish lymph, in size varying from a pin's head to that of a pea. The left Sylvian artery with its four cortical branches were normal, and contained no embolus; and there was no softening of any portion of the left hemisphere. On the right Sylvian artery was an aneurism as large as a small marble. The arteries beyond were normal, and contained blood; and there was no softening of the cortex supplied by them. On incising the brain, there was seen a large clot in the right hemisphere, extending upwards into the centrum ovale minus, downwards nearly to the apex of the temporo-sphenoidal lobe, destroying nearly the whole of the right caudate and lenticular nuclei and the internal capsule, and rupturing into the right lateral ventricle. No ruptured arteries could be seen. On the left side, there was a fœtid abscess with ragged walls occupying the position of the anterior limb and the front half of the posterior limb of the internal capsule, extending outwards into the nucleus lenticularis. The cavity was oval in shape, with its long axis measuring 1½ inches. Continuous with the blood-clot in the left side of the brain, was blood-clot filling up both lateral ventricles

and the central canal as far down as the fourth ventricle, to the foramen of Majendie, through the roof of which it had passed, and spread on to the surface of the inferior vermiform process of the cerebellum, so giving rise to the appearance seen on examining the outside of the brain. This clot could be removed entire, forming a good cast of the lateral ventricles and central canal of the nervous system.

The rest of the brain was normal to naked-eye examination.

From the results of the *post mortem* examination, it seems clear that the case was, as supposed, at first one of rheumatic endocarditis,—during this time embolism of a splenic artery, with resulting infarct, occurred,—and that it subsequently became a septic endocarditis. Then came, suddenly, septic embolism of a left retinal artery (producing a retinal hemorrhage with a white centre) and of the lenticulo-striate branches of the left middle cerebral (producing a fœtid abscess).

When embolism of the right middle cerebral occurred is not certain; but that it did seems most probable, for the aneurism of the right Sylvian, and the rupture of the lenticulo-striate branches of the right middle cerebral were both probably the result of previous embolism.

The lesion of the right internal capsule was such, that its effects corresponded exactly to those of the first three cortical branches of the middle cerebral, so that during life there were no means of determining which was the site of the lesion.

Progress of the Medical Sciences.

MEDICINE.

The question of the value of tuberculin in the treatment of internal tuberculosis, and especially of pulmonary phthisis, still attracts a great share of medical attention, and during the last three months numerous papers have appeared. The ultimate position of the treatment still remains uncertain, but a more extended experience seems to show that it will be but of limited utility. It was to be expected that the outburst of enthusiasm with which the announcement of Koch's discovery was received would be succeeded by a period of corresponding reaction. The pendulum has swung back in the opposite direction, but we may hope that it will shortly come to rest and the real value of the remedy be satisfactorily ascertained. In the face of the well-authenticated cases, relatively few in number as they may be, in which remarkable benefit, if not complete cure, has been the direct result of the injections, it is impossible to conclude, as some authors would have us, that tuberculin is incapable of doing good and too potent for harm to make its employment desirable. The dangers of the treatment seem to have been exaggerated, as with properly selected cases and careful watching during the administration of tuberculin there appears to be little risk of accident.

On the other hand, we have learned enough of the remedy to know that it must be used with circumspection; that, although the evidence of its value in early pulmonary phthisis is too strong to be doubted, even in the early stage the results are often disappointing and occasionally bad, whilst in the advanced stages of the disease the ill effects more than counterbalance the advantages. In the accounts of cases, it is often mentioned that after injection signs of consolidation were observed in parts of the affected or of the opposite lung, in which no signs of disease had been previously detected: these signs are taken as indicative of local reaction around foci of tubercle previously too minute for recognition clinically. Dr. Heron states that in his cases these signs all cleared up before

the patients left the hospital. The point is an important one, and is often not brought out with sufficient clearness in published reports, as we require to be certain that this clearing-up is the constant result before we can use tuberculin with confidence.

The Official Report of the German Government—which, however, it must be remembered, only went up to the end of 1890, and therefore only included the early experiences—was a disappointing one, after the hopes that had been raised. In this country the divergence between the opinions of different observers is very great. Some condemn the treatment altogether—Dr. Theodore Williams, for instance, thinks that it is inferior to the ordinary methods of treatment. One of the chief hindrances to success is the difficulty of obtaining constitutional tolerance of tuberculin without the loss of the local effect on the lesions. Mr. Watson Cheyne, in his very valuable and moderate statement, recommends a continuous method of administration, by which he believes this result will be best attained. He also thinks that the remedy will prove to be of greater value in medicine than in surgery. His mode of administration would seem, however, to be inconvenient to carry out in ordinary practice, especially as he considers that, to ensure a satisfactory termination in phthisis, the duration of treatment should be two years.

Under such conditions, we may perhaps ask for the demonstration of more decided gains than have yet been shown. It seems probable, however, that further experience will show that tuberculin is the most potent curative agent we possess for certain forms of phthisis, and will bring out the best method of employing it.

Meanwhile, with regard to the line of action to be taken at present; in early cases of phthisis, injections of tuberculin, combined with ordinary modes of treatment, seem to offer the best prospect of cure. Dr. Douglas Powell has pointed out that in early cases in which there are small tuberculous centres, with a catarrhal condition of the surrounding tissues, tuberculin may possibly hasten fibroid formation; but that having obtained some success, it is not wise to continue the treatment too long, but rather to trust to hygienic and general measures to complete the obsolescence of the tubercles. In cases which have passed beyond the early stage, it is more difficult to decide; but if the patient is steadily losing ground under the ordinary methods of treatment, tuberculin should be tried, after the conditions have been explained to him, as offering, at any rate, a prospect of amelioration.

* * * *

Dr. Arthur Ransome[1] has carried out some experiments to test the influence of exposure to light, of fresh air, and of a dry soil upon the virulence of the tubercle bacillus. He selected two specimens of sputum—one containing few, the other many bacilli; Portions of each were exposed in three ways: (1) in a watch-glass; (2) in cotton-wool cages; (3) in a flask arrangement with cotton-wool. After exposure under the following conditions, the sputum was injected into rabbits, and its virulence determined by its power of inducing tuberculosis in these animals. None of four specimens exposed to fresh air and light on a dry soil, in each of the three arrangements above mentioned, conveyed the disease; but one of three portions exposed in darkness to otherwise similar conditions, produced tuberculosis. Of two specimens exposed in the light on the window-sill of a four-roomed tenement-cottage in Manchester, situated on a clay soil, badly ventilated and without cellarage, one produced tubercle, the other did not: an identical result was obtained in the case of two specimens exposed in the same cottage, but in comparative darkness. A specimen exposed in the ventilating shaft from a ward of the Bowden Hospital for Consumption conveyed the disease, but a portion of the same after ten days' exposure to the action of ozonised oxygen failed to do so. Although the experiments were few in number, he thinks that the conclusion may be drawn that fresh air, light, and sandy soils have a distinct influence in arresting the virulence of the bacillus; darkness interferes with this antiseptic action, but mere exposure to light in otherwise bad sanitary conditions does not destroy the virus.

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From an analysis of several cases, Professor Lancereaux concludes that a pulmonary lesion may exist in the child or in the adult as a result of hereditary syphilis. This lesion, so far as is at present known, is localised in one lung, affects the lower lobes, and takes several years to evolve. The physical signs are, dulness, with (in some cases) tubular or cavernous breath-sound, and abundant expectoration. *Post mortem* a sclerosis of the pulmonary parenchyma is found, with moderate-sized cavities circumscribed by cicatricial tissue. Tracts of fibrous tissue give the lung a certain analogy with tuberculous lungs; there is, however, a complete absence of tubercles in both the sound and morbid parts of the lung. As there is no dilatation of the bronchi, the cavities must originate in the softening of gummatous tumours or in

[1] *Medical Chronicle*, March, 1891.

the partial necrosis of the sclerosed pulmonary tissue. These morbid changes are remarkable for their slow evolution, and sometimes persist for years with appreciable change in the local and general health. If taken early, they are amenable to treatment by mercury and iodide of potassium; the treatment should be carried out energetically. The pulmonary lesions differ from those of acquired syphilis only in the more complete organisation of the syphilitic growth and by its greater diffusion and extension.

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The tendency of the investigations of recent years has been to attach increasing importance to lesions of the pancreas in diabetes, more especially since v. Mering and Minkowski produced diabetes in dogs by extirpation of the pancreas. They found however, that if a small portion of the gland were left, diabetes did not occur even though the excretory duct were completely removed. Lépine states [1] that healthy blood possesses what he calls glycolytic properties. Fresh blood contains a considerable proportion of sugar; if it be allowed to stand for an hour at the body temperature, 20–40 per cent. of the contained sugar disappears. He considers that this glycolytic property is due to a ferment contained in the corpuscles, more especially in the white corpuscles, since portions of blood richest in leucocytes contain most ferment, and the chyle is as active in this respect as the blood itself. In animals deprived of the pancreas and in cases of diabetes, this glycolytic power falls to 5, 2, or 1. The pancreas thus seems to be the chief source of the ferment. He supposes that the activity of the pancreatic cell manifests itself in two directions—in formation of the pancreatic juice which is poured into the excretory duct and of the glycolytic ferment, secreted by the opposite pole of the cell and passed into the blood lymph. In diabetes or in extirpation of the pancreas, the absence of this glycolytic ferment from the blood allows sugar to accumulate in it.

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In his recent lectures on the "Neuroses of Development," Dr. Clouston is inclined to attach importance to the shape of the palate as an index of brain development. He classifies palates into three groups according to their shape, of which the first, the typical or "horse-shoe" arch, and the second, the neurotic or "gothic" arch, occur in about equal proportions in the healthy; the third variety, or "deformed" palate,

[1] Abstract in *Brit. Med. Journ.*, April 4, 1891, from *Revue Scientifique.*

has for its most common form a V or saddle-shape, produced by the presence of a bony shoulder alongside of the teeth on each side, but also includes palates in which there are marked central bulgings, depressions, or cup-shaped hollows. In 604 sane persons, some variety of the "deformed" palate was found in only 19 per cent.; while in 161 persons either idiots or suffering from some congenital mental defect, it was present in 61 per cent. and of cases of acquired insanity, in the insanity of adolescence, which shows the most marked heredity, in 55 per cent. The important relation of the palatal arch to the base of the skull in man is shown by the fact that a perpendicular let fall through the most anterior part of the brain passes through the middle of the palate, whereas in the monkey it only touches its posterior margin. On account of the close relationship of the upper maxilla to the base of the skull, and necessary dependence of the skull-case and palate on the development of the brain, the shape of the palate may afford an index to the latter. If brain-growth dominates skull-growth in all parts, it will determine the development of the palate; and the size and shape of the brain being governed by hereditary influences, a bad nervous heredity will declare itself both in a badly-formed brain and in an abnormal palatal arch. The deformed palate is not an expression of the reversion to a lower type of skull; for in savage races the shape of the skull, if not altered from disease or degenerative changes, does not modify the dome of the palate nor convert it into the V-shape. The shape of the palate makes no difference to the sense of smell nor to the power of mastication, but alters very materially the facial expression and slightly affects the speech.

He considers that the vaulted palate and altered dental arch are to be taken with other abnormal changes in the head, and especially in the facial expression, as morphological indications of defective development; and that the change in the shape of the palate may possibly be explained by the supposition that the frontal lobes, the part of the brain which lies above the palate, become arrested in development through bad heredity, and the base of the skull in front is therefore narrowed, while at the same time the jaw must remain large enough to hold the normal number of teeth.

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Prof. Lannelongue [1] has performed craniectomy in twenty-five children, some being cases of microcephalic idiocy, and the others presenting various cerebral troubles with or with-

[1] *L'Union médicale* and *Nouv. Icon. de la Salpêtrière*, March, 1891.

out epileptic attacks. He argues that among microcephalics the ossification of the cranial sutures takes place too early—in one infant the fontanelles were ossified at birth,—and that even if it is admitted that the rate of ossification depends on cerebral growth and activity, it is not the less true that the occurrence of premature synostosis will arrest in a parallel and definite manner the growth of the cerebrum. The *modus operandi* is, the removal of osseous bands in a linear direction along the course of the sutures or over the motor area of the cortex, or the separation of bony flaps by the removal of narrow strips of bone so as to leave the flaps connected with the skull by a broad or narrow base. The indications for the operation are: (1) microcephaly, (2) deformities of the skull arising from uterine compression when there is deficiency of amniotic fluid, (3) in old infantile meningeal hemorrhages, and (4) in certain forms of hydrocephalus and other cases. The operation probably acts in (1) and (2) by allowing the brain to develop and in the last by relieving pressure.

Although Prof. Lannelongue states that the results both as regards intellect and gait are good in his cases, the remote effects of the operation must be at present considered doubtful. One objection lies in the extreme difficulty of recognising premature ossification of the sutures; many cases of microcephaly which appear to be due to this cause, turning out to have the sutures non-ossified.

J. MICHELL CLARKE.

SURGERY.

In the last few years a great deal has been written, and some real knowledge has accumulated, on the subject of Inflammation of the Vermiform Appendix. In the April number of *Annals of Surgery*, the whole subject has been reviewed in articles of conspicuous merit by five American surgeons; and these articles may be taken as the record of our present high-water mark of knowledge on the subject. The writers are: Mynter of Buffalo, McBurney of New York, Keen of Philadelphia, Stimson of New York, and Fowler of Brooklyn.

The vermiform appendix belongs both to the physician and the surgeon, and is alternately neglected and overrated by both. Its behaviour when diseased does not readily fit into the case-books; the signs cannot be tabulated as can cardiac bruits or groin swellings. Inflammation of the vermiform appendix is a disease full of diagnostic difficulties, practical perplexities, and too numerous fatalities.

To begin with, we must deal with the Agnostic—"the experienced practitioner who has seen many cases, but not one fatal." McBurney, whose unrivalled and most successful experience in operating for the disease gives him the title to speak out, deals effectually with this gentleman. If he reads McBurney's words he may return to his studies. In the clinique of this "experienced practitioner," cases of fæcal accumulation in the cæcum represent simple appendicitis; and when perforation takes place, it is reported as death from intestinal obstruction. This deliberate and sceptical philosopher is antagonised by the enthusiastic and credulous surgeon who would "cut down" on every painful spot in the right hypogastrium; and in the disputes between these two the poor patient often comes to grief.

The disease is real enough: its diagnosis, with proper study, is not impossible; while its treatment, in competent hands, is most successful. One of our writers (McBurney) gives a list of 24 operations performed by himself, with 23 recoveries; in not one was there an error in diagnosis. These were all comparatively early operations, where diagnosis was perhaps most difficult, but where treatment was most hopeful. In late cases, where what he calls "septic paresis of the intestines" has set in, operation in a number of cases was uniformly fatal. This is my own experience, as it is that of all the other writers.

Is it possible to systematise and classify our knowledge of the disease? I think, within limits, that we can. If such system is provisional and such classification may be modified hereafter, I am confident that benefit must result from our attempts meanwhile.

In the papers referred to, several classifications of the disease are given. These agree in the main, but not in detail; indeed, the many-sided features of the disease render a simple and natural classification almost impossible.

The classification that seems to satisfy most requirements, clinical and pathological, is that of With of Copenhagen, referred to by Wynter. Modifying With's classification a little, we believe the leading varieties may conveniently be be known as I. Plastic; II. Purulent; and III. Perforative.

I. Plastic appendicitis is characterised by the development of adhesions between the appendix and neighbouring organs, and would correspond to the variety clinically known as Recurrent Appendicitis. Such adhesions may be either a few fine threads joining the appendix, usually at some point near its tip, to some abdominal organ; or they may be of the most extensive character, being general matting together of

bowel, with dense fibrous tissue in the centre of which is the appendix. In one case at operation I have found quite acute symptoms produced by adhesion of the tip of the vermiform appendix to the left ovary; in another the appendix was, with much difficulty, found embedded in a mass of surrounding adhesions. The symptoms here are chronic or recurrent, with complete or partial remissions.

II. Purulent Appendicitis is characterised by the early formation of an abscess or abscesses around a perforation in the appendix. Such an abscess is protected or localised by adhesions, which prevent the diffusion of its contents through the general cavity. Secondary and outlying abscesses are formed around the first; and if the patient survives and operation is not performed, we may find around the small appendix an enormous collection of pus contained in several pouches, the walls of which are formed by adherent bowel or bare parietes. A rare form, in which the perforation takes place between the layers of the appendicular mesentery, may burrow under the peritoneum of the pelvis and right loin. This variety, though it may follow the first, is usually subacute from the beginning, and has but little remission till the disease is at its worst, in from a fortnight to three weeks.

III. Perforative Appendicitis is intended to refer to the variety in which there is a sudden discharge of fæcal matter into the abdomen, without the formation of protective adhesions. There is collapse more or less profound from the beginning of the onset which is usually without warning; and, in spite of operation, unless when performed very early, the result is almost uniformly fatal.

Recognising these as natural varieties, we must further note that they occasionally run into each other. Thus, a plastic appendicitis may become purulent; and a purulent and protected appendicitis may suddenly become diffuse. But it is certainly the case that they most frequently remain during the greater part of their progress distinct.

This is not the place in which to discuss symptomatology, but I may refer to a few signs which seem to be noteworthy.

McBurney's "point" has been made a good deal of, and has been alternately overpraised and discredited. This symptom is elicited by pressure with the point of the finger over a small area about midway between the umbilicus and the right anterior spine of the ilium. This area overlies the base of the appendix. I believe it is a sign of real value in all cases of plastic appendicitis. In the suppurative variety there is usually palpable thickening, and an area of tender-

ness wider than can be covered by the finger; in the perforative variety the symptom is of little value.

Palpation gives help in proportion to the tactile capacity and experience of the examining surgeon. In my opinion it is the most valuable means of physical diagnosis; and in the great majority of cases may be almost decisive. By the rectum some thickening will be found somewhere near the sacro-iliac synchondrosis, usually in the first variety, always in the second, and but rarely in the third.

The left hand pressing downwards to the right forefinger in the rectum may be of assistance, and may even prove the presence of a cystic tumour between them. Bi-manual, or rather bi-digital, examination is, in my opinion, the most valuable single means of diagnosis in the first and second varieties.

Not a few of the worst cases are diagnosed as intestinal obstruction: these are almost uniformly of the perforating variety, or of the purulent, in which a large localised abscess has suddenly become diffuse. These are, in fact, examples of intestinal paresis. If there is a large abscess in the pelvis, a frequent discharge of mucus by the rectum is sometimes met with. Very rarely is there diarrhœa.

One other misleading sign may be mentioned: this is the presence of a tympanic note over an area which palpation tells us contains a collection of pus. With this sign there may be actual or comparative dulness in the dependent portions on the left flank. In two recent operations I have found this combination of resonance on the right side, and dulness on the left; and in both cases it helped to mislead those in charge of the patients. The dulness on the left side was from fluid-laden bowels; the resonance on the right was from the presence of free gas overlying the putrid collection of pus. Here the value of palpation is conspicuous.

As to the best time for operating, opinions differ somewhat. A limit of three days has been set to the time we may safely wait. As an average over all cases taken indiscriminately, this would probably be fairly accurate; but in some cases the limit would properly be extended, and in others it would certainly be too long. Thus, in simple plastic appendicitis, with recurrent attacks, we may wait for weeks or even for months before determining to operate; while in the perforating variety operation cannot be performed too soon after the condition has been diagnosed. In the suppurating variety, which is probably the most common, waiting for two or three days may be advisable, but then only if diagnosis is uncertain. If there is a strong presumption that pus, however small in amount, has formed, operation should

be done without delay. Of course if the abscess is large and palpable, the indication to operate is urgent.

The characters of the disease being so varied, the operative details must present a corresponding variety. But there is a very general harmony of opinion as to the main indications to be observed in all cases. Thus, the parietal incision should be made over the seat of disease, and not in the middle line, unless the operation is purely an exploratory one. Adhesions should never be disturbed if it is possible to avoid doing so, and irrigation should be conducted with great gentleness. Secondary outlying abscesses should, if possible, be opened and drained through the primary abscess surrounding the origin of the disease. It is wiser to be content with simple evacuation and drainage, than to run any risk of causing diffusion of pus through the cavity by elaborate attempts at thorough cleansing and disturbing of conservative adhesions.

In dealing with the appendix itself, our method of procedure will vary according as it is embedded in a mass of dense fibrous adhesions or lying free in an abscess cavity. In the worst cases it may be left to its fate, while we wait for the issue which will follow simple evacuation of an abscess: in such cases the operation will probably have been performed without an anæsthetic. In the cases of plastic appendicitis, where there are abundant adhesions, the isolation of the organ may be a very difficult and tedious business; where the adhesions are not abundant, the operation may be very simple. The easiest cases are usually those in which a small abscess surrounds the appendix. Removal is probably the best treatment in all cases. And almost any variety of closure from simple ligation with catgut to involution of the mucosa and elaborate suturning of the serosa has been proved to be successful. One point should be noted; and that is, whether there is a free passage into the cæcum. The merest drop of pus left between the ligature and the cæcal aperture may, if this aperture is not pervious, lead to a catastrophe. If there is any doubt, the appendix should be completely involuted, and the serosa of the cæcum sutured over it.

J. Greig Smith.

OBSTETRICS.

Notwithstanding all that has been said about the duration of pregnancy, the length of a normal gestation does not seem to be definitely settled. The question is one that has a more important practical interest than is often supposed. Not only

is it desirable that we should be able to give with some amount of accuracy the probable date of delivery, but in cases where the induction of premature labour is indicated, it is at times a matter of very great importance that we should be in a position to say how far the pregnancy has advanced.

Dr. James Oliver[1] thinks that an investigation regarding the human female may be greatly aided by a review of the conditions in reference to the duration of pregnancy in the lower animals; although in these, notwithstanding that the date of insemination can be fixed with certainty, the period of gestation is found to vary considerably. Doubting the assertion that the duration of normal human gestation may range from 260 to 304 days, and dissenting from the usual mode of calculating 278 days from the cessation of the last menstruation, Dr. Oliver, who quotes many observations made on the lower animals, says the best results will be obtained by first ascertaining the usual number of days in the intermenstrual period; half this number is then to be added to the date when the last menses disappeared, and a further addition of 260 days will most probably give the date of confinement. This plan, ingeniously deduced by Dr. Oliver, is however beset with difficulties, of which the varying intermenstrual period in the same individual is not the greatest. Any theory based on the cessation of the menses must be often fallacious. A physical sign that is tolerably constant is needed as a guide in the determination of the stage of the pregnancy.

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Dr. A. P. Clarke,[2] proceeding on the theory that parturition is not a mechanical but a physiological function, considers that anything which tends to exhaust the general system interferes with the normal action of the parts, and disturbs the proper functions of the uterine tissue; and he considers that not only is uterine inertia induced by keeping the patient for a long time in one position, but that other troubles, such as cystitis with inflammation proceeding up the ureter and involving the kidney, may be a consequence. He quotes the *post mortem* record of a case in which this seemed to be the order of events. Dr. Clarke would also attribute some cases where rupture into bladder or rectum has taken place to long retention in one position. He also thinks that the

[1] *Liverpool Med.-Chir. Journ.*, Jan., 1891.

[2] *Journ. Am. Med. Assoc.*, Mar. 28, 1891, p. 334.

same factor is responsible for some of the cases in which inflammation of the uterine appendages comes on soon after delivery. Although Dr. Clarke probably overrates the influence of position, it is possible that this may be occasionally an overlooked cause of some *post partum* troubles; and it would be well to bear in mind that a frequent change of position is desirable, and may even result in bringing a labour to a speedy termination. In the discussion which followed Dr. Clarke's suggestive paper, emphasis was laid upon the advantages of chloral in tedious labour. There can be no doubt that, given in two doses of 15 grains each, twenty minutes apart, as mentioned by Dr. Playfair,[1] a first stage may be often quickly changed into a second.

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In the *Journal de Médecine*[2] for February 25th, 1891, is given a detailed account of the antiseptic precautions observed in various French maternities. These are most elaborate, and the good results obtained are attributed to them. But it is clear that accoucheurs have something to learn from the recent history of operative surgery, and are more likely indebted to a strict regard for cleanliness than to the antiseptics they adopt. Although impossible in private practice, no doubt many of these precautions are excellent, and amongst them, for general adoption, may be specially recommended a lubricant consisting of perchloride of mercury and vaseline. I have for some time used such a preparation (gr. i. ad ʒ i.) and have every reason to be well satisfied with it. The baby is not without a share of these attentions, and at one of the hospitals receives, probably with disapproval, a prophylactic instillation of lemon-juice into the eyes. In all the institutions there is a routine practice of bathing the eyes with some disinfectant.

With a desire to secure complete asepticism, it has been proposed that the blade and handle of the forceps shall always be made in one piece, so that there may be no crevices in which noxious material may lurk.

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On February 26th, Dr. P. McCahey exhibited before the New York Academy of Medicine[3] an instrument which he calls "The Atmospheric Tractor," and which he suggests as an occasional substitute for the forceps. It is a kind of cup, with handle made of thick, soft rubber. The

[1] *Brit. Med. Journ.*, vol. ii., 1890, p. 715.

[2] See *Medical News*, April 25, 1891, p. 470. [3] *Medical Record*, Mar. 28, p. 385.

tractor covers an area of about five square inches, and exerts a force, when applied to a wet surface like the head of the newly born, of from twenty-five to thirty-two pounds, or over one-third of the atmospheric pressure, which is fifteen pounds to the square inch. He claimed that the instrument could be applied with facility, furnished a sufficient amount of force to extract the child, was positively harmless, and could be used with perfect safety in both normal and abnormal labours. In normal labours it was employed to shorten suffering. Of course the os must be dilated to a size as great or greater than that of the tractor. Dr. McCahey had used the instrument in about twelve cases, and had delivered in from five to twenty minutes, where nature would probably have required two hours or more.

Apart from the injury which is said to be sometimes inflicted upon the child, the obstetrician may well rest satisfied with the tractive power he already possesses, and, having Simpson's long forceps, need not seek to find any substitute for that simple instrument, which can do no harm in any careful hands.

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The recent literature on Puerperal Convulsions is considerable. A noteworthy contribution to it was that in our March number by Dr. Swayne, recording a series of thirty-six cases, and extolling the advantages of venesection. Not much is to be learned from the record of isolated cases, especially when no discrimination is made of the varieties upon the importance of which Dr. Swayne so strongly insists.

In a philosophic survey of the subject, Dr. James Tyson[1] points out the importance of a prophylaxis of this complication, and laments the frequency with which pregnant women are allowed to go to term without examination of the urine. He considers that Rosenstein did not overstate the condition when he said that convulsions occur in about one-fourth of all the cases of nephritis in pregnancy, and that about 30 per cent. of the eclamptic cases die. When Bright's disease is associated with pregnancy, Dr. Tyson recommends the induction of premature labour: (1) in those cases where a previous confinement was accompanied by grave accidents which may be predicted to recur, especially those in which brain-symptoms had appeared; (2) in every primipara in whom Bright's disease existed before marriage. In those cases where it is concluded to attempt to prolong gestation to the viable period or to the end of pregnancy, Dr. Tyson insists

[1] *Medical Record*, Jan. 3, 1891, p. 1.

on the freest elimination being kept up, and this through kidneys, bowels, and skin. If, in spite of all this, convulsions occur at the time of labour, he insists that, while the necessary emptying of the uterus is being carried out, blood-letting, chloroform, or chloral should be employed to diminish the danger of the convulsions. Dr. Tyson is very emphatic in saying that blood-letting is needed almost without exception in every case of uræmic puerperal convulsions, and that many a case is lost through its omission. As soon as it has been carried out as far as seems safe or judicious, chloroform or chloral should be administered to control the convulsions, or one or the other may be used simultaneously with the bleeding. Under no circumstances is the action of chloral more happy, and the rectum affords a medium of administration as prompt and efficient in its operation as the mouth, which is generally unavailable for the purpose. No less than a drachm in solution should be given at such a time by enema, and it is unwise to temporise with smaller doses.

Another view of the subject is presented by Dr. W. S. Gardiner,[1] under whose supervision there was an examination of the urine of 180 pregnant and parturient women, taken consecutively at the Maternité Hospital, Baltimore. Four of these patients had convulsions, and three of them died. Details are given of the urine analysis and of the cases of convulsions. Dr. Gardiner admits that the number of cases presented is too small for giving a dogmatic opinion, but says that if these are to be considered average cases, the following conclusions may be drawn: (1) The presence of albumen in the urine of a pregnant woman is no sufficient cause upon which to base a prognosis of probable eclampsia. (2) The failure to find albumen in the urine of a pregnant woman is no evidence of the absence, or, at least, of the continuance of the absence, of the condition that gives rise to puerperal convulsions. (3) Albumen is so frequently found in considerable quantities in the urine of patients, immediately after the appearance of puerperal convulsions, that we are justified in making the statement that the convulsions are the probable cause of the albuminuria.

Before the Obstetrical Society of London, on November 5th, 1890, Dr. Herman[2] cited four cases of pregnancy with Bright's disease without eclampsia. He pointed out that to understand the relation between renal disease in pregnant women and eclampsia of pregnancy it was necessary to com-

[1] *Therapeutic Gazette*, Jan. 15, 1891, p. 16.

[2] *Brit. Med. Journ.*, vol. ii., 1890, p. 1124.

pare cases of renal disease without eclampsia, and said that there was very little evidence either for or against the view which many held, that puerperal eclampsia was nothing else than uræmic convulsions, occurring as the result of kidney disease in pregnancy and childbed.

It is obvious that the study of this distressing and dangerous condition has not advanced very far, and that to its consideration must be brought minds capable in no ordinary degree of making correct deductions from observed facts, and of weighing evidence in the most impartial manner.

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The treatment of abortion is so frequently a difficulty, and causes so much anxiety in the mind of the obstetrician, who wants to do neither too little nor too much, that anything which can elucidate the difficulty should be welcomed.

Dr. H. C. Crowell[1] referring to cases of expulsion not later than the third or fourth month, thinks that although the uterine contents may be expelled under expectant treatment, in which he would include the administration of ergot and the clearing away of clots, &c., by the finger, yet a condition of ill health often lingers afterwards, and that even the larger part of all cases of tubal troubles date from a mismanaged abortion. He quotes Winter of Berlin, who shares his views, and then sums up as follows: (1) An abortion is a pathological process, involving the premature expulsion of the fœtus and membranes from the uterine cavity, which, normally, have an existence of nine months before they shall have completed their physiological intention. (2) That such expulsion is generally incomplete when left to nature, thus exposing the patient to subsequent pathological conditions or possibly death. (3) That every case should receive a careful examination by the use of the blunt curette, in preference to the finger, as it is safe, easier of introduction, and more effective. (4) Complete removal of all membranes, maternal and fœtal, offers the greatest protection and safety to the patient. (5) Perfect asepsis and drainage is a necessary supplement to the curette. (6) Ergot has little or no effect in the treatment of cases of abortion. If used at all, it should be in the later stages to assist involution.

Many practitioners had previous to this adopted the treatment by curette, and it is evidently growing in favour. Dr. Whitehead, a medical man in New Zealand, recommends[2]

[1] *Medical News*, April 25, 1891, p. 460.

[2] *Lancet*, Feb. 28, 1891, p. 494; *Brit. Med. Journ.*, Mar. 21, 1891, p. 651.

for the purpose a modification of a Sims' curette, and gives a description and illustration of the instrument, which he considers admirably suited for such cases.

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In the *American Journal of the Medical Sciences*[1] Dr. W. T. Lusk has a paper dealing in detail with "Life-saving Methods in Still-births," which deserves careful study. Many cases have doubtless been given over in the belief that it was hopeless to attempt to restore life, and in which perseverance might have resulted in establishing respiration.

Dr. Lusk refers to this, and opportunely reminds us that the object of medical practice is to save life, and says that he regards the rescuing of a new-born infant from impending death to be as distinctly a professional triumph as the saving of life by ovariotomy, by Cæsarean section, or by the operation for appendicitis. But he points out that in these cases of deep asphyxia no miracles are to be wrought without patience, watchfulness, and a hopeful spirit. He reminds us that in many cases the child has been temporarily restored to life, only to die of atelectasis after a few days. To guard against this fatal sequence—due in part to imperfect expansion of the lungs, in part to lobular congestion—there is no method that rivals the one of Schultze. This, which consists in attempts to produce alternate expansion and compression of the lungs by suspension and swinging of the infant, has been most recently described and illustrated in the *System of Gynæcology and Obstetrics by American Authors*—"Obstetrics," Vol. I., p. 576.

* * * *

Amongst the recently reported obstetric curiosities and rarities may be quoted the following:

(1) A primigravida, six months pregnant, shot herself, the ball entering four inches to the right, and in a line with the umbilicus. When first seen she was suffering but very little from shock. She was anæsthetised with chloroform, and the wound was found to be a penetrating one. She was sitting in a low rocking-chair when she attempted suicide, the pistol being held close to the body. A probe could be passed between the muscles to Poupart's ligament. Upon laparotomy, the abdomen was found filled with blood and clots, and a ball-wound was found to the right side of the fundus of the uterus near the attachment of the Fallopian tube. This wound was closed by sutures, no wound of exit for the ball being found.

[1] Feb., 1891, p. 109.

About twenty-four hours after the injury was received the patient aborted with a six-months' fœtus. The fœtus had a ball-wound just behind the acromion process of the scapula, another above the umbilicus, and the right leg was shattered below the knee. The patient recovered in four weeks from the time of the injury.[1]

(2) Dr. Herman[2] performed Cæsarean section in a patient at full term, whose age was 37. On vaginal examination, the pelvis was found so filled with a hard elastic swelling bulging from its left wall, that the fingers could not be inserted between the right pelvic wall and the greatest diameter of the tumour. This proved to be an osteo-sarcomatous growth, the interior of which was broken down into a cavity containing blood and pus. The mother died three days after the operation, but the precise cause of death was not ascertained. The child was living.

(3) A woman in her third labour expelled the head and arms of her child, but no further advance could be made. The child's abdomen was found to be enormously distended, and when punctured was only slightly reduced in size. The child was then partially eviscerated. Both kidneys were found to be considerably enlarged and were the seat of cystic degeneration. Dr. M. H. Morrell,[3] who reports this case, says that although several cases have been recorded in which the kidneys were sufficiently large to impede labour, he could only find the account of one case in which mutilation of the child was necessary.

(4) Dr. Kingsbury[4] relates a case in which he hypnotised a young girl under 15 years of age who was in labour, and who was delivered of a child weighing 8½ lbs., being quite positive she had had no pain. She had been hypnotised once a week for three months before her confinement; and Dr. Kingsbury advises everyone who wishes to try this method to have at least six preliminary sittings, so as to accustom his patient to the process, and also to thoroughly test to what degree of hypnosis he can bring her.

* * * *

Cæsarean section, with its various modifications, and the treatment of extra-uterine pregnancy have properly passed almost entirely into the hands of the abdominal surgeon.

[1] See abstract from *Southern Medical Record*, No. 2, 1891, given in *American Journal of Medical Sciences*, April, 1891, p. 430.

[2] *Lancet*, May 2, 1891, p. 986. [3] *Medical News*, Jan. 10, 1891, p. 40.

[4] *Brit. Med. Journ.*, Feb. 28, 1891, p. 460.

Current literature records many of these cases. The *Index Medicus* will furnish the references.

* * * *

It seems late in the day for those entrusted with the control of Medical Education to be trying to make up their minds about the training in obstetrics required for students, and one reads with pain and dismay the record[1] of the way in which the members of the General Council of Medical Education and Registration of the United Kingdom attempted, on May 28th, 1891, to solve the difficulties connected therewith. Dissatisfied with the present training-standard in midwifery, a member brought forward a proposition in reference to the attendance of students. The discussion which followed is not likely to give us an enhanced opinion of the dignity of the General Council of Medical Education and Registration of the United Kingdom. One speaker stated that he had a feeling akin to shame in reference to existing regulations, which were described by another member as wofully inadequate. A third speaker described the result of the previous discussion on the subject as a miserable fiasco, which made him feel ashamed of the Council. A protest against this language from another member, and a further statement by another that the present standard was admirable, did not deter yet another member from characterising their own proceedings as the subject of scoff and satire; whilst another considered that the proposal then before them, requiring students to attend a lying-in institution, was absurd, apart from being impertinent. Little wonder that, with a discussion conducted on lines such as these, the members of the General Council of Medical Education and Registration of the United Kingdom did not arrive at a very intelligent conclusion. An amendment that students should attend for six months the practice of a lying-in hospital or maternity institution was carried by 18 to 7. On being put as a substantive motion, an amendment that, with certain safeguards, part attendance on twelve labours, either at an institution or under the supervision of a medical man, should be sufficient, was carried by 14 to 11. But this failed to establish itself as a definite resolution; for an amendment to adhere to the resolution of 1888 was approved by 17 votes to 8, and was afterwards formally adopted as a substantive motion. This unedifying spectacle was thus terminated, and the *status quo ante bellum* was maintained.

Attendance at labours practically unsupervised is emi-

[1] *Brit. Med. Journ.*, May 30, 1891, pp. 1184-6.

nently unsatisfactory. Preceded by a thorough teaching of theory and accompanied by a full knowledge of a trustworthy text-book, attendance at a lying-in hospital should be made compulsory; and if this were at an institution where the number of cases was fairly large, the attendance of a month, carried out under the direction of competent resident supervision, would be ample to equip the student with the confidence and knowledge necessary for facing the variations of midwifery practice with which he would be afterwards confronted.

L. M. GRIFFITHS.

LARYNGOLOGY AND RHINOLOGY.

During the past few months there has been issued an immense amount of literature bearing on this branch of medicine and surgery. The German journals especially have published numbers of articles dealing with the treatment of tuberculosis and lupus of the upper respiratory tract, due doubtless to the fact that the International Congress was held at Berlin, and that Koch succeeded in inducing large numbers of his medical compatriots to try tuberculin (Kochii), which was given to them for purposes of experiment long before it reached the medical world at large. The treatment of tuberculosis was admirably discussed both at the Birmingham Meeting of the British Medical Association and at the International Medical Congress.[1]

Mr. Symonds concluded an admirable paper thus: (1) Tubercular disease of the larynx should be treated on the same lines as elsewhere; viz., by cauterisation or curetting. (2) That lactic acid is the best caustic. (3) That the disease can be treated by endo-laryngeal methods in most cases.

Our objects in operating are: (1) To relieve cough and dysphagia. (2) To diminish the liability to pulmonary affection. (3) To increase the rapidity of cure in those cases disposed to it, as is done by general surgeons in tubercular disease of joints.

The most suitable cases are: (1) Those with no evidence of pulmonary disease. (2) Those with severe cough and dysphagia, but with pulmonary disease that is not rapidly advancing. (3) Those with early or chronic pulmonary disease.

Several specialists who were present at the reading of Symonds's paper expressed their approval of the lactic acid

[1] *Brit. Med. Journ.*, Sept. 13, 1890.

treatment, but it was reserved for Heryng,[1] who must be regarded as the pioneer of this crusade against tubercle, to read at the Berlin Congress a masterly account of his immense experience of these cases and their treatment. He is greatly in favour of curettement of the diseased structures, and of the application of lactic acid to them.

The indications for curettement are: (1) In circumscribed infiltration of the posterior laryngeal wall and recent unilateral affection of the epiglottis. (2) In deep ulceration of the ventricular bands. (3) In sprouting ulcers of the surface or edges of the vocal cords. (4) Where the process is spreading very quickly, with much dysphagia, due to inflammatory swelling or ulceration of the epiglottis or of the posterior wall of the larynx, with no hope of cure.

He showed a good case of cicatrisation of tubercular larynx after curettement four years ago, and pathological specimens. Altogether his work is most convincing, and shows that resolute surgical procedure by scraping and lactic acid—just the treatment, in fact, that surgeons know will cure tubercular disease in other parts, *e.g.*, joints and lupus of skin and mucous membranes, will also cure the larynx.

But following rapidly on all this good work came Prof. Koch's discovery; and whilst the time is not yet ripe for attempting to fully estimate the value of tuberculin (Kochii), a great deal has been written by men competent to judge, and who have been treating patients affected with throat and nose disease for the past six months.

At the close of the important discussion on the action of tuberculin by members of the Berliner Med. Gesellschaft, Prof. B. Fränkel said that, though fully alive to the possible danger of the injections, he had found the curative effect in many cases so much better than he had yet observed to follow any other method, that, in his opinion, the physician, after having carefully and conscientiously selected suitable cases, must calmly face the danger. Fränkel is a careful observer, and his experience in February, 1891, was just that of December, 1890, when he told me that laryngeal tuberculosis could be cured by injections.

Dr. Michael[2] reports favourably of the action of tuberculin in a number of his own cases of tubercular and lupous throat mischief, and in those of other specialists, who state that ulcers clean, necrosis of previously infiltrated parts occurs, and is followed by removal of the slough and healing of the ulcer

[1] *Berl. klin. Woch.*, Sept. 15 and 22, 1890.

[2] *Journal of Laryngology and Rhinology*, Jan. and April, 1891.

left, and subsidence of infiltration takes place; and at the same time functional improvement of the voice, &c., goes on *pari passu*. This I have seen in some cases, the sloughing and after-healing being most remarkable. At the same time, some cases show signs of considerable disturbance: the voice, which previously had been full, is extinguished, because of fresh inflammatory mischief, with swelling, infiltration, and necrosis, and only after a considerable period has elapsed do the affected structures return to the condition in which they were before the treatment was begun, or even stop short of that and are left in a worse state temporarily and perhaps permanently.

Mackenzie [1] reports on seven cases of affection of lungs and larynx treated by injections; with the result that one was much improved, one improved, one not improved, and four were unfavourably affected. In three of these seven cases acute circumscribed œdema took place, but in no case was any dyspnœa produced.

Lennox Browne [2] has had 14 cases under his care, and he says: "I regret to say that up to the present I have not seen any of those visible and marked evidences of improvement in the larynx such as I witnessed at Berlin . . . but symptomatic relief has been almost constant, and in some cases quite remarkable in the rapidity of its occurrence, in its extent, and in its permanency, even where physical changes have been unfavourable." As regards the therapeutic value of the lymph, I could quote the opinions of numbers of the leading laryngologists and rhinologists of this and other countries who are still using it in carefully-selected cases of tuberculosis and lupus of throat and nose, and who keep their minds open on the subject, the undue optimism of the end of the year 1890 not having given place to the pessimism that is so prevalent in some quarters to-day. As regards its diagnostic value, the balance of evidence is in favour of its power to differentiate tubercle and lupus from other diseases which, as far as appearances go, are differentiated from them with the greatest difficulty. At the same time, I have seen tuberculin cause local redness and swelling and general reaction in a case which all observation would lead us to believe was one of tertiary syphilis of the nasal septum, and the history was also in favour of that diagnosis; but then we may have a great deal to learn as to the differences between syphilis and tubercle or lupus. I consider that the

[1] *Journal of Laryngology and Rhinology*, April, 1891.
[2] *Journal of Laryngology and Rhinology*, May, 1891.

only course for laryngologists to pursue is, to keep an open mind on the question of the value of tuberculin. At the same time, I cannot but acknowledge that the results up to the present have been disappointing; but it is quite premature to absolutely condemn it, as is the fashion with some men who have seen very little of its use in their own practice or that of others.

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Prof. Oscar Liebreich has introduced cantharidinate of potash, in doses of one to two decimilligrammes injected subcutaneously, for the treatment of tuberculosis. The theory of its action is, that it causes transudation of blood-serum at the affected spot, and thus disinfects *in loco* and without producing fever or any inflammatory action; but there is the unfortunate drawback that, even in minimum doses, it causes intense vesical tenesmus and in some cases albuminuria. The remedy has not been under trial long enough to say anything as to its value.

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Loeffler[1] finds that solution of corrosive sublimate, 1 in 10,000, will kill the bacilli of diphtheria, and 1 in 1,000 the cultures. Permanganate of potash 1 in 100, and chlorate of potash 1 in 20, were without effect. Chloroform water—which, as we know, will keep hypodermic solutions free from fungi growth for long, if not indefinite, periods—is very effective. He therefore recommends, as local measures during an attack, a gargle of a solution of 1 in 1,000 corrosive sublimate, or 3 per cent. carbolic acid; and inhalations of turpentine and the oils of eucalyptus, citron, &c., are useful. As a prophylactic, use a gargle of aq. chloroformi, or a solution of corrosive sublimate, 1 in 10,000.

* * * *

The usual crop of papers bearing on nasal reflexes has appeared, and the question of the etiology of asthma has been not a little discussed. West[2] considers the discovery of the association of nasal affections with asthma the greatest advance in our knowledge of the pathology of therapeutics for many years past. Thorowgood has seen marked improvement after removal of nasal polypi. Hall has noticed great improvement, but never complete cure, after treating the

[1] *Deutsch. med. Woch.*, 1891, No. 10.

[2] *Brit. Med. Journ.*, Nov. 15, 1890.

nose. Semon believes that we cannot distinguish between cases where treatment directed to the nose will be beneficial or otherwise. How all this criticises Bosworth's statement that every case of asthma has some nasal trouble which is the *fons et origo mali!* At the same time, every asthmatic patient ought to have the nose examined carefully, and my experience is that some distinct nasal mischief will, in a large number of cases, be discovered.

Sedziak,[1] writing elaborately on the symptoms set up by deviations of the nasal septum and the treatment necessary for their rectification, thus summarises: (1) In fresh cases, *e.g.* result of traumatism in children, tampons of wool. (2) In somewhat older ones, where the cartilaginous septum is affected, orthopædic treatment by means of Jurasz's modification of Adams's forceps, the nasal cavity being carefully dusted with iodol during the first few days, and ivory plugs inserted to keep the septum straight. Spines and spurs he treats by means of the galvano-cautery, Bosworth's saw, or the chisel.

On dit that there is to be a crusade against excessive nasal surgery at the forthcoming meeting of the British Medical Association at Bournemouth. There is, I believe, too much tinkering and meddling with the nose done by some rhinologists, of whom one well-known specialist may be looked upon as the chief offender; but no one who has vainly endeavoured by insufflation, douches, &c., to reduce the abnormal sensitiveness of an inferior turbinate, and who then has recourse to galvano-cautery and completely cures the condition, doubts the efficacy of strong measures; and the removal of spurs is frequently the only remedy for obstinate nasal and naso-pharyngeal catarrh.

* * * *

Stokes read a paper before the Laryngological Society, in March, 1891, on intra-laryngeal removal of an epitheliomatous growth of the larynx, which nine months afterwards had not recurred. The operations were done with the snare, and the base cauterised. This, as we know, is not the only case on record of complete removal of a malignant growth by the mouth, but it is improbable that such success can be often repeated.

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Pyoktanin continues to gain favour as a remedy for some ulcerative throat and nose troubles. The list of new and

[1] *Journal of Laryngology and Rhinology*, March and April, 1891.

marvellous drugs grows longer, but we will wait until most of them—such as goat's blood and dog's serum—have had their short-lived day, and report only on those that survive the blighting influences of use and observation of effects produced.

England as readily offers a home to useless and harmful drugs with long names as she does to Polish Jews and foreign paupers.

BARCLAY J. BARON.

OTOLOGY.

On May 10th, 1890, Dr. Menière of Paris laid his conclusions concerning aural complications of *La Grippe* before the French Otological and Laryngological Society. He states that these complications are the result of retro-nasal affections. Of 57 cases, 23 lasted four or five weeks, 16 lasted three months, 8 lasted four months, and others were still under treatment by reason of complications, such as periostitis and mastoid inflammation. The treatment consisted in warm-water irrigation in the external canal and in the Eustachian tube, paracentesis of the drum membrane in some cases, and in four instances thermo-cauterisation of the mastoid.

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Sir Wm. Dalby sounds a timely note of warning in reference to "Bubble" Remedies in Aural Surgery. Under this heading he includes: (1) The promiscuous use of artificial ear-drums, for the manufacture and sale of which a company was recently floated in London with a capital of £100,000. (2) The use of electricity by all sorts of incompetent persons. (3) The mutilation, by removal, of the turbinated bones of the nose for deafness, in cases where the nose is perfectly healthy and unaffected. (4) The hypodermic injection of pilocarpine in totally unsuitable cases. (5) The division of the tensor tympani muscle for deafness. This last he describes as including in its history "a flight of the imagination, a brief notoriety, and a burial in oblivion so rapid as falls to the lot of few achievements in surgery."

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Politzer lays down the following rules in regard to the administration of pilocarpine injections for deafness: (1) The subcutaneous injection of pilocarpine is particularly indicated

in recent affections of the labyrinth, be they syphilitic or not. (2) The injections are of little use in acute inflammation of the middle ear. (3) They are decidedly contra-indicated in cases of dry sclerotic catarrh of the middle ear. (4) Injections of several drops of a two per cent. solution into the tympanic cavity through a catheter are beneficial in some cases of catarrh with swelling and slight secretion.

In such cases the injections should be given for from one to two weeks alternately with Politzer's method of inflation.

* * * *

Dr. Syenes, an otologist of Buda-Pesth, has found menthol of value in the treatment of furuncles of the auditory canal. A 20 per cent. solution of it is used, and a pledget of cotton wet with it is placed in the canal.

The following has been recommended by Kirchner for the same affection: Corrosive sublimate, three-quarters of a grain; water, one fluid ounce; glycerine, five fluid drachms.

* * * *

Syenes found in the last epidemic of influenza that in the first stage of acute inflammation of the tympanum a 15 per cent. solution of carbolic acid in glycerine did good service.

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Creolin and iodol are unsatisfactory in ear disease; salicylate of bismuth and aristol are of as little service; lactic acid, even in weak solutions, causes pain and erosions, so it soon has to be given up; cocaine is useless for tinnitus.

* * * *

As an instance of the occasional danger of syringing the ear, Dr. Philips of Savannah reports a case of a man, 54 years old, with an accumulation of cerumen in the left meatus. With a small rubber-ball syringe, holding about 1½ ounces, Dr. Philips began to syringe the canal. Several syringefuls, forced gently into the ear, not bringing away the wax, he used a little more pressure. Suddenly something seemed to give way; water poured from the left nostril, and the patient complained of some pain in the ear. The wax, which was loosened, having been removed, a recent rupture of the drum membrane became visible, in the form of a thin crack, with a few drops of blood scattered along it. The wound rapidly healed under suitable treatment, and no bad after-effects resulted.

W. H. HARSANT.

Reviews of Books.

Principles of Surgery. By N. Senn, M.D. Pp. 611. Philadelphia: F. A. Davis. 1890.

For several reasons the book before us is worthy of more than the passing notice we can give to it. It is the work of one of the ablest and best known among the younger generation of American surgeons. It marks a new departure in the presentment of a large body of medical knowledge. And finally, in numerous instances, doctrines are enunciated which are not in keeping with those ordinarily taught.

To take the last point first. It is not our intention to offer any detailed criticism on views which many of us would consider erroneous or improved. Right or wrong, they are always philosophic and plausible; and even where they seem to be most faulty, they are full of suggestive, almost startling, novelty, and a study of them can only do good. Senn is a man who thinks for himself: this attribute alone should make him a welcome, if novel, addition to the host of writing surgeons.

The work is distinctly a new departure in surgical literature. It deals with the "fundamental principles of the art and science of surgery," according to the lights of modern research. The healing of wounds and the behaviour of diseased tissues are studied from every possible point of view, both as regards special tissues and special processes. The influence of bacteria on wounds receives, almost for the first time in a work on general surgery, the full measure of attention which its supreme importance demands. Among diseases of wound infection are properly ranged, not only Septicæmia and Pyæmia, and Erysipelas; but also Tetanus, Hydrophobia, Actinomycosis, Anthrax, and Glanders. This is as it should be. Amongst the same class Tuberculosis holds a preponderating position.

The work is evidently that of a learned and original surgeon, and, if only as an example to others in the manner of utilising and classifying modern knowledge for teaching purposes, must have a marked influence for good. But,

possibly because we expected too much, we can clearly see how easily it might have been better. The language is often heavy, and sometimes neither idiomatic nor pure; the meaning is not always clear; and the classification is occasionally open to objection.

The author, in the preface, asks our indulgence for possible defects in proof-reading, on account of his absence from home. He also tells us that "many sleepless nights were required in its preparation." In future essays, our author should remember that the public make allowance for no faults; and that the best work is done not during sleepless nights, but during waking days. Still, if he has not done himself justice, he has done us good service.

Heredity, Health, and Personal Beauty. By JOHN V. SHOEMAKER, M.D. Pp. 422. Philadelphia: F. A. DAVIS. 1890.

The mode of exchanging ideas which is known amongst us as conversation is represented under certain circumstances by Americans as "Talk," and in its most advanced development as "Tall Talk." This is some "Tall Talk" by a gentleman whose chief pursuit, amongst many described on the title-page, would appear to be Dermatology. From Darwin and evolution to pimples, and cunning concoctions for the cure of these, the book treats "*de omnibus rebus et quibusdam aliis.*" Chapter X. is entitled "Grace the Crown of Beauty," and Chapter XXXVI. is headed "List of Medicated Soaps." In this extensive *répertoire* there must be a corner for the special product of the Continent; and, sure enough, Chapter XII. is on "The Evolution of the American Girl"!

We have read the book from beginning to end with astonishment, almost with awe. It is brimful of noble sentiments and elevating advice; it bristles with figures of speech, and is not devoid of distinct efforts at logical reasoning. But somehow we cannot help smiling as we read; for bathos jumbles pathos, the ridiculous ousts the sublime, the culture of the schoolboy handles the thoughts of the sage or the historian, and through the whole peeps the clinical insight of the skin doctor. It is, in fact, a sort of apotheosis of the somewhat unsavoury subject of Diseases of the Skin.

On one beloved, if somewhat tender and delicate, theme he insists, and occasionally waxes eloquent, suspiciously pro-

testing too much; and this is, the pervading cleanly habits of the American, as compared with the less clean (not actually filthy) habits of the Englishman. Here our own mouths are shut; but we may quote from Julien Gordon, one of their own writers, not unknown amongst us, who says: "The American . . . is lamentably untidy—I hesitate to say unclean, but I do not hesitate to assert, and to assert it vehemently, that the first clause is true of our men of all classes, stations, vocations, and degrees of wealth!" Unsavoury details follow. As to defending ourselves, we may safely leave that to the fair American hostess who, when asked why American girls preferred English men, replied, "Oh, their men are so clean!" If his womenfolk are for us on this ground, there is clearly a large field for the skin-specialist among Dr. Shoemaker's male compatriots.

Manual of Bacteriology. By EDGAR M. CROOKSHANK, M.B. Third Edition. Pp. 460. London: H. K. LEWIS. 1890.

A hearty word of welcome must be given to the Third Edition of this admirable work. A good deal of new matter has been added, and greater preciseness in several cases has been given to previous studies. The beautiful illustrations continue to be the leading feature of the book.

Notes on Typhoid Fever: Tropical Life and its Sequelæ. By JEFFERY A. MARSTON, M.D., C.B. London: H. K. LEWIS. 1890.

These *Notes*, written from the military medical officer's standpoint, are a few "dropped stitches in the pathological pattern of typhoid fever." Two points bearing on treatment are worthy of comment: the one is the omission of all mention of intestinal antiseptics with a view to the prevention of relapses, and the other is the great utility of systematic antipyretic treatment either by drugs or (if these fail) by means of the cold bath.

The two chapters on tropical life will be of interest to those who have not seen much of life and disease in the tropics.

The Thermometer in Obstetrics and Gynæcology. By A. D. LEITH NAPIER, M.D. London: H. K. LEWIS. 1890.

This pamphlet consists of two lectures delivered at the Midwives' Institute. They must have been uncommonly dreary for the listeners, for they contain little else than the enumeration of various readings of the thermometer after childbirth and after the graver gynæcological operations.

The thermometer is of course an indispensable aid in diagnosis, but it is easily possible to overrate its value. Too often a high temperature is looked upon as a disease which has to be attacked by a liberal exhibition of so-called anti-pyretics, when the more scientific and satisfactory course is to seek out the cause and remove it. One free saline purge will often do more than numerous doses of recently-introduced drugs.

However, Dr. Leith Napier's lectures, founded upon an extensive personal experience, were worth printing; although we fail to see, when addressed to nurses, the desirability of the latter portion dealing with treatment by medicines.

Epilepsy: its Pathology and Treatment. By HOBART AMORY HARE, M.D. Philadelphia: F. A. DAVIS. 1890.

The essay on Epilepsy, to which was awarded the prize by the Académie Royale de Médecine de Belgique, Dr. Hare has published in the Physicians' and Students' Ready Reference series. Like most prize essays, the work is mainly based upon the observations of others, and in some sections seems to lack that spontaneity and coherence found in the original work of an independent investigator. Not that we wish to suggest that Dr. Hare has not himself done good work, the results of which are incorporated in the text of the book; but, in order to obtain statistics dealing with cases in large numbers, it is necessary to mass together the results obtained by many observers. Dr. Hare has carefully consulted all that has been recently published on Epilepsy, and gives abundant references in foot-notes to the cosmopolitan literature of the subject. The chapter on Pathology is mainly devoted to expressing his own views on this topic, and reads therefore with a greater homogeneity than some other parts of the book. Taken as a whole the work is a good and succinct compendium

of our present knowledge of Epilepsy, for which we thank Dr. Hare, and at the same time offer him our congratulations upon his being elected to succeed so distinguished a predecessor.

Surgery. By C. W. MANSELL MOULLIN, M.A., M.D., F.R.C.S. Pp. 1413. London: J. & A. CHURCHILL. 1891.

The issue of a new text-book on Surgery of the size and pretension of the work before us is in itself a noteworthy event. There is a demand for a good text-book on Surgery; for our old ones have, most of them, fallen into dubious, or even bad, repute, and we are ready to welcome a new one with a mind that is even better than unbiassed. We sat down to a study of the work in this hopeful mood, and we rose from its perusal congratulating its author on the fulfilment of his task.

The mere labour of writing a work of this size is no mean undertaking. In bulk it surpasses most of our English students' text-books, and is exceeded only by the single-author works of Gross and Agnew in America. In variety of subjects treated, in breadth and comprehensiveness, it probably surpasses all. Well as our author has done, we believe he would have done better had he called in more extraneous help: the excellent character of the four articles by four authors, which form a very small proportion of the bulk of the work, confirms us in this belief, which is further strengthened by the undoubted existence of certain weak elements in the work. Such weak points might have been removed if the sheets, as they passed through the press, had been submitted to the criticism of surgical friends specially qualified for the task. Even if such criticism had not changed opinions, it would certainly have done good by bringing forth fuller evidence in favour of dubious principles. As an example, we might instance the author's description of Colles' fracture of the radius. Without anything like sufficient proof adduced, the causation of this fracture is described in a manner directly antagonistic to the views of our most competent authorities. A critical friend would certainly have made our author re-write this description; he would have pointed out that if these were our author's views, they should, in the first place, have been put forth and demonstrated in an elaborate monograph. The settled views of capable men, put forth in many writings,

cannot be upset by a page in a text-book. It is but fair to say that only in rare instances can the author's views be regarded as against the weight of authority. We believe that with such critical assistance as we have suggested, these few instances might be removed: perhaps another edition will see them removed.

In respect of the manner in which the book is written up to date, we must give unqualified and unstinted praise. In all the newest surgery of asepticism, in the most recent advances in the surgery of the intestines and the bladder and the brain, the writing is up almost to the day of publication. The most recent investigations and the latest surgical innovations scattered throughout journals are collected, elaborated, systematised, and made to do duty in their proper sequences throughout the work. Nothing, in our study of the work, has impressed us more favourably than this proof of the laborious energy of the author.

For some mysterious reason, which we have never been able to understand, medical works are arranged into chapters, like parcels according to bulk, and sometimes according to bulk only. In the case of a novel appearing in weekly numbers, the length of a chapter may have more than one meaning; it may even with propriety stop in the midst of a thrilling narrative; but such an arrangement is difficult to understand in a scientific work. For instance, Chapter XIV. is on "Injuries and Diseases of the Neck and Throat," and there we might naturally expect to find some account of Diseases of the Thyroid, and possibly of the Larynx; but it is not so. Diseases of the Thyroid have an independent chapter all to themselves, while Diseases of the Larynx are lumped up in Chapter XIII. with Diseases of the Ear! Again, Injuries and Diseases of the Abdomen are minutely and exhaustively described, down to surgical affections of the Liver and the Pancreas, in Chapter XVIII.; but the Kidney is rigidly excluded from this chapter, and appears in a separate chapter after one on Diseases of the Rectum. Even if there are sound reasons why the kidney should be excluded from the abdomen, or the prostate (Chapter XXII.) from the bladder (Chapter XXI.), which we doubt, we venture to affirm that it is certainly not proper to keep the urethra (Chapter XXIII.) out of the penis (Chapter XXIV.). This forced arrangement into chapters is not peculiar to our author by any means; it is probably less conspicuous in his case than in other text-books that could be named. Nevertheless, we regard it as culpable, and condemn it.

In minor details the classification is not always perfect.

For instance, Inflammation of Bone is described under the following heads:

1. Acute Inflammation.
2. Chronic Inflammation—Rarefying Ostitis, with the sub-heads of:
   (*a*) Resolution;
   (*b*) Persistence (Caries Sicca or Fungosa);
   (*c*) Organisation (Osteo-Sclerosis).
3. Caries:
   (*a*) Simple;
   (*b*) Specific.

Caries, it will be noted, is not a variety of chronic inflammation, it is not even a "rarefying ostitis." Osteo-Sclerosis is, however, a variety of "rarefying ostitis"! Then comes a section on Varieties of Inflammation, starting with *simple traumatic* (in italics), and going on with PHOSPHORUS NECROSIS (in capitals). Surely there are mistakes in type-setting here, as well as serious faults in actual classification!

As to the illustrations, our criticisms have, in a measure, been discounted. It is the wholesome practice of writers of books to acknowledge in the most prominent manner in the text, or with the description of the figure, the source from which an engraving, not original, has been derived. Our author has ignored this practice, demanded no less by honesty than by courtesy, until a grave complaint has been made by one most aggrieved. By issuing a new "List of Illustrations," giving the source of each borrowed engraving, Mr. Moullin did what he could to minimise a fault which nothing less than separate acknowledgments printed with each figure in the text can completely remove.

In conclusion, we can honestly speak of the work as being comprehensive in matter, clear in diction, trustworthy (with few exceptions) in fact, and on the whole worthy of being recommended as a text-book.

The Year-Book of Treatment. London: CASSELL & Co. 1891.

The Medical Annual. Bristol: WRIGHT & Co. 1891.

We have again to welcome the appearance of these useful Annuals. Both are improvements on previous numbers; *The Medical Annual* more evidently so than *The Year-Book.*

The value of *The Year-Book* is still diminished by the fact that the reports of papers are not always neutral, but are occasionally disfigured by personal opinions and criticisms of the abstractor. Now we—the public—care

nothing for the opinions of the abstractor: we want the opinions of the men who wrote the papers—men whose repute is usually superior to that of their critics, and who have no opportunity of replying to these criticisms. Of one thing the writers of these abstracted papers might properly complain; and that is, when their papers are not fairly presented. Three such we have happened to note. And we like to know that an abstract is done from an original paper. An abstract of an abstract is not likely to be trustworthy; and our belief in it will not be enhanced if it is recorded as being directly from the original, when we know it could not have been so. For instance, an abstract whose only acknowledged source is from a journal written in a language a knowledge of which the abstractor does not add to his many accomplishments, is not likely to command our respectful attention. Has *The Year-Book* at its head a man of acknowledged editorial capacity and firmness?

The Medical Annual has none of these faults, and shines by the possession of antithetic virtues. Besides the usual summaries and references, arranged alphabetically, there are several excellent articles on special subjects of present interest. Conspicuous among these last may be mentioned Dr. Long Fox's exhaustive article on "The Hand as a Diagnostic Factor in Nerve Disease," and Dr. Wethered's article on "The Sputum as an Aid to Diagnosis."

Year-Book of the Scientific and Learned Societies of Great Britain and Ireland. Pp. 219. Eighth Annual Issue. London: CHARLES GRIFFIN AND COMPANY. 1891.

We gladly welcome the current volume of this admirable work of reference. As secretaries are not always careful to supply the information desired, any sins of omission which may be detected in it must be imputed to them and not to the compilers of the book. The lists of papers read are most useful.

Koch's Remedy in Relation specially to Throat Consumption. By LENNOX BROWNE, F.R.C.S. Ed. London: BAILLIÈRE, TINDALL, AND COX. 1891.

This handsome little book is one amongst the immense number of articles and pamphlets that have appeared during the present year, bearing on the action of tuberculin in cases of tuberculosis of the upper respiratory tract.

When it left the writer's desk in January, 1891, he had but recently returned from Berlin, and we can, therefore, excuse the optimistic tone of his work. We do not believe that increased experience bears out his statement that "phthisis in the beginning can be cured with certainty by this remedy." We hope that a definite proportion of all early cases may be cured, but we fear that "certainty" is not the correct word to use in this connection.

On the whole, the various points as regards dosage, selection of cases, treatment during reaction, &c., are well discussed; but we are all learners in this school, and much that was written in the beginning of this year may be found to be valueless by the end of it. As one instance of the way in which those who may be looked upon as authorities in Koch's remedy have altered their dosage, we may cite Prof. P. Guttmann, who suggested 1 mg. as the initial dose for adults in December last, and now recommends $\frac{1}{10}$ mg. as a proper quantity to administer at first.

The treatise is worth reading, for the description it gives of throat consumption, lupus, &c.; and it goes without saying that it is well illustrated and turned out of hand. It cannot, however, be regarded as an authoritative statement of the uses and value of tuberculin.

The Action of Water on Lead. By JOHN HENRY GARRETT, M.D. London: H. K. LEWIS. 1891.

The constant occurrence of lead-poisoning, to an extent productive of considerable injury to the public health, in certain districts where the drinking-water exerts a continuous action on the lead service-pipes, has of late aroused considerable interest; and many practical chemists have directed attention to the exact nature of the action, and to the determination of the reasons why some waters—notably the moorland surface-waters of Yorkshire, which are otherwise of excellent quality—possess this lead-dissolving power in so remarkable a degree. At the present time, when the attention of the Government has been directed to this important question, Dr. Garrett's careful experiments and judicious interpretation of results may be commended as well worthy of study, and as throwing a not inconsiderable light upon this somewhat obscure problem.

Lectures on Diabetes: including the Bradshawe Lecture delivered before the Royal College of Physicians on August 18th, 1890. By ROBERT SAUNDBY, M.D. Edin., F.R.C.P. Lond. Bristol: JOHN WRIGHT & Co. 1891.

In this book, which is distinguished by the clearness of statement and thoroughness of treatment which marked the *Lectures on Bright's Disease* by the same author, we have an account of the etiology, morbid anatomy, symptomatology, and treatment of diabetes which fully comes up to the anticipations we had formed from our knowledge of his previous work, and which indeed leaves little or nothing to be desired. In it the latest researches and the older established facts about the disease will be found stated in due order, stress being properly laid on the most important points, whilst the minor ones are not neglected, and the whole subject treated in such a way that the orderly arrangement impresses the chief features of diabetes upon the memory. The author has the gift of rendering the obscure clear; and his thorough grasp of his subject enables him to bring out the real significance of experimental and clinical observations whose connection with the matter in hand was before difficult to appreciate.

The history of the disease is briefly discussed; and then we have, in an interesting and well-arranged chapter, an account of the various experiments and theories with regard to glycosuria, and a discussion of their bearing upon diabetes. The author truly says that there is probably no disease which is so overweighted by theoretical considerations derived from an overwhelming amount of physiological experiment; but, at the same time, by his method of treating these he shows how much there is to be gained from a thorough acquaintance with them as a preliminary to the study of the disease itself. He indicates the gaps which exist in our information and probably prevent us from estimating aright the bearing upon diabetes of some of the experiments from which we are at present able to glean little advantage.

Tables are given of the incidence of diabetes in the various British Colonies. We notice that they do not confirm the opinion of a recent American writer, that there is a greater proportionate number of cases in cold and damp climates.

The section on morbid anatomy consists of the Bradshawe Lecture for 1890. The author is inclined to consider the changes found in the pancreas and semi-lunar ganglia as of great importance, though further observations are at present

desirable. To those who are disposed to disparage pathology we may quote his remark that "diabetes, far from having no morbid anatomy, has by later investigations been shown to have one of a very complicated and far-reaching kind." This whole section will repay careful study, and is illustrated by good drawings of the microscopical appearances.

In the chapter on the clinical history, and in the following one on diabetic coma, the chief points are illustrated by short accounts of cases. These cases are well-selected and reported, and add to the value of the text. A fact of some interest is, the liability of diabetics to enteric fever. We would suggest that the directions for testing the urine for sugar, etc., would be better in a short chapter by themselves.

There is a good account of the skin diseases that are found in diabetes. The discussion of diabetic coma which follows occupies considerable space, and is the best account of the subject we have seen. Dr. Saundby thinks that three clinical types of coma must be accepted, though one of them is very rare. He is cautious as to drawing any positive conclusions as to the cause of the coma from the data at present at our disposal, and concludes that "we are unable to determine positively the nature of the toxic substance or the determining causes of the sudden explosion of the fatal terminal symptoms; these phenomena are toxæmic, and in diabetes depend upon the presence in the blood of some substance nearly allied to acetone."

A chapter on diabetes insipidus gives a good account of this hitherto somewhat mysterious complaint. To every chapter is appended a good bibliography.

In conclusion, we may say that those who wish to possess a clear and full idea of the present state of knowledge of diabetes, both from the practical and from the theoretical standpoints, will do well to read this book carefully.

Materia Medica and Therapeutics: an Introduction to the Rational Treatment of Disease. By J. MITCHELL BRUCE, M.D. Nineteenth Thousand. London: CASSELL & CO. LIMITED. 1891.

It is, we suppose, one of the mysteries of publishing into which we have no right to pry, that this issue of Dr. Mitchell Bruce's book is described as the "Nineteenth Thousand," instead of the Fourth Edition. There have been

three previous editions, and the present preface is called the "Preface to this Edition." The principal changes introduced have been the accounts of the recent additions to the Pharmacopœia, and these have been effected without altering the number of pages. It is a book of exceeding merit, and one which we consider well-nigh indispensable to the practitioner.

Reports from the Laboratory of the Royal College of Physicians, Edinburgh. Edited by J. BATTY TUKE, M.D., and D. NÖEL PATON, M.D. Vol. III. Edinburgh: YOUNG J. PENTLAND. 1891.

This third volume of the *Reports* of the Edinburgh Laboratory fully keeps up the high reputation of the two preceding ones. The papers cover a good deal of ground, being on widely different subjects; so that there is matter here for all members of the profession, with whatever branch of it they may be especially concerned—whether with medicine, obstetrics, bacteriology, physiology, or morbid anatomy. Although investigations published under such auspices have naturally been conducted on pure scientific lines, and the reports of them bear everywhere the stamp of this origin, it must not be concluded that they have no practical everyday bearings; on the contrary, one of the most striking points about the book is the close relation that the experiments, of which the account is here given, maintain with the details of clinical practice, and the real aid that can be gained from a study of them towards carrying this out on rational grounds. The observations are obviously the outcome of much and long-continued labour, and the conclusions obtained have been closely scrutinised and duly weighed.

The first article is a most able and elaborate account of the pharmacology of morphine and its derivatives, by Mr. Dott and Dr. Stockman. Next follows a short report by Dr. Stockman on the excretion of balsams in the urine, in which he shows that the four balsams of the Pharmacopœia can be given in as large a dose as is ever desirable in practice, without fear of inducing nephritis or albuminuria. He thinks that in some at least of the recorded cases of albuminuria after administration of balsams a resinous body in the urine has been mistaken for albumen.

Dr. Helme gives an interesting study of the physiology of the uterus, and the action of drugs upon it. His experiments show that contraction of the uterus is coincident with

diminution of the blood-flow through it, contrary to what is observed in striped muscle, and that the rhythmical character of the uterine contractions can always be traced. He gives full directions, based on experiment, for the employment of the hot and cold uterine douche, and discusses fully the action of ergot, chloral, and camphor.

Then come two papers by Dr. Lovell Gulland: the first, on the origin, nature, and variety of leucocytes, in which the different theories are critically discussed, and the author's own observations on the points at issue given; the second, on the development of adenoid tissue, with especial reference to the tonsil and thymus. This paper and the one following, by Dr. Chas. Kennedy, on a case of cystic disease of the liver and kidneys, are illustrated by good drawings of microscopic sections.

Dr. Nöel Paton and Dr. Balfour contribute an important paper on the composition, flow, and physiological action of the bile in man, from a series of observations in a case of complete biliary fistula. They are led to the general conclusion that the bile is rather an excretion than a secretion which performs an essential part of the digestive process, and that the entrance of the bile into the intestine is not necessary for the maintenance of health. In its absence, the only digestive disturbance produced is the diminished absorption of fats, and even of these 70 per cent. are still absorbed. They think that the prevalent ideas as to the quantity of bile excreted and of solids produced are too large. Of the drugs that increased the flow of bile, calomel and salicylate of soda appeared to be the most active, and ox-gall in less degree. The clinical use of calomel would seem, therefore, to be justified by their observations. Dr. Nöel Paton also has a paper on the influence of muscular work on proteid metabolism, in which he points out the inaccuracy of the conclusions arrived at by Argutinsky and Krummacher.

An article by Dr. J. C. Webster on the nerve-endings in the labia minora and clitoris, with especial reference to the pathology and treatment of pruritus vulvæ, in which he says that the removal of the affected parts is the only means of complete cure, is followed by an interesting contribution by Dr. Berry Hart on the anatomy and mechanism of early abortion. A description of an improved method of preparing large sections of tissues for microscopic examination is given by Dr. Webster.

A paper by Drs. Woodhead and Cartwright Wood on bacterio-therapeutics, in which the theory of immunity is discussed in a clear and scholarly manner, will be read with

interest and profit at the present time, when attention is so strongly directed to this subject.

The last research is one by Drs. Cartwright Wood and Maxwell Ross on the influence which the process of inflammation exerts on the course of infection as exemplified in anthrax and erysipelas. As an outcome of their observations, they give a method of treatment for the latter affection which seems likely to be of service in cutting short the spread of the disease.

It is impossible in the course of a short notice to give more than a mere outline of the contents of the book, but the above remarks will indicate the extent and the scientific and practical interest of the researches described in it. To most of the papers is appended a bibliography, and many of them are accompanied by charts and drawings which add to their value. We must congratulate all concerned in the production of this work, and we shall look forward to succeeding volumes from the same source. The general appearance and style of the book in printing, binding, etc., is excellent.

The Elements of Ophthalmoscopic Diagnosis. By GEORGE A. BERRY, M.B., F.R.C.S. Ed. Edinburgh: YOUNG J. PENTLAND. 1891.

If it be an advantage to the student for a time to concentrate his attention upon what he can learn through the ophthalmoscope, the book before us will certainly help him to systematise his work, and will save him the trouble of searching through the text-books for the information he requires. One sufficiently skilled in the use of the ophthalmoscope, with the material afforded by a large eye clinic, might feel sure that Berry's book would help him rapidly and thoroughly to traverse the subject with which it deals.

The appearances of the normal fundus, and the exceptional physiological peculiarities or congenital anomalies met with, are first described. Then the various affections of the retina, choroid, and optic nerve are depicted in clear and accurate language.

Opacities in the media—vitreous, lens, and cornea—are also described.

The value of direct examination of the cornea, with help of a strong lens (20 D), is not mentioned: by this means slight keratitis punctata, or lens opacities, are most readily

detected. There are but few omissions, and no errors; and the book fairly covers the elements of ophthalmoscopic diagnosis, and is worthy of the high reputation of its author.

Pulmonary Tuberculosis, Etiological and Therapeutic. By R. W. PHILIP, M.A., M.D., F.R.S.E. Edinburgh: YOUNG J. PENTLAND. 1891.

The author of this essay discusses the *modus operandi* of the tubercle bacillus in leading towards death, and endeavours to prove that the result is due to its power of elaborating new products which are afterwards absorbed. He summarises a large number of observations on frogs, mice, and rabbits, in which the toxic effects of an extract of phthisical sputum and their antagonism by atropine were demonstrated. He proceeds to make certain therapeutic observations, and suggests a general division of phthisis into three stages:

1. Catarrhal, previous to inoculation with the bacillus.
2. Invasion by the tubercle bacillus.
3. Elaboration and absorption, when toxic effects are induced, with characteristic clinical features.

We think that the existence of a pretubercular stage such as is meant by No. 1 is by no means proved; and we should be sorry to encourage the far too common idea that tubercular phthisis is simply bronchitis for many months, and then becomes tuberculous by inoculation into a suitable soil. Doubtless tuberculous mischief may exist in the lung for long periods anterior to the manifestation of catarrhal symptoms, and at the very earliest stage of many cases, even anterior to the manifestation of physical signs of disease in the lung, the sputum may be found to contain multitudes of bacilli. On the other hand, the chronic catarrhal patients, with bronchitis recurring for many years, emaciated and apparently an easy prey to bacillary disease, may live an indefinite time, and escape tubercular inoculation altogether. Catarrhal processes are a very importantpart of the phenomena of phthisis, but we are inclined to look upon the invasion of the bacillus as the first stage and the catarrh as a secondary product.

The author emphasises the utility of intra-tracheal injection, and he prefers eucalyptus oil in olive oil, or the following:

Chloroform. pur.	ℿxxx.
Balsam. Peru....	ʒij.
Olei Eucalypti	ʒij.
Ol. Ricini... ... ... ad.	ʒj.

Sig. Thirty mimins for dose once or twice daily.

The object of treatment is *not so much the actual death of the bacilli present*, but rather the saturation of the medium with such agents as may be supposed, or may be proved experimentally, to be *prejudicial to the vital activity of the organisms*; for, as has been said, "the life of the bacillus is difficult, easily discouraged by unfavourable circumstances, like an aphis by an easterly wind."

As regards the treatment of the stage of absorption, the author's experimental observations give good ground for a modern endorsement of Trousseau's belief that atropine exerts a specific action on the lung-tissue in phthisis.

Notes on the Examination of the Sputum, Vomit, Fæces, and Urine. By SIDNEY COUPLAND, M.D., F.R.C.P. London: H. K. LEWIS. 1891.

The author states that these memoranda were originally compiled for the use of the students of his class. They comprise directions confined to the most important points in the examination of the above excretions; and these have been made with judgment, and are clear and accurate. Such notes are serviceable to students, if they bear in mind that they are to be used only as a means, by frequent reference in their daily work, of more readily acquiring the elementary facts in the clinical examination of the excretions, and not as a substitute for thoroughly committing these facts to memory.

Our Baby: for Mothers and Nurses. By Mrs. LANGTON HEWER. Bristol: JOHN WRIGHT & Co. 1891.

It is a pleasure to be able to say that this is an admirable book to put into the hands of one who is about to, or has just, become a mother, or of one who has the charge of young children. It abounds with practical information, clearly and briefly expressed.

Chapter II., entitled "Is Baby All Right?" is the one we like least in the book. It contains scarcely anything that the young mother need know, but much that would give her many an unnecessary fright. The chapters on "Baby's Illnesses" and "Medicines for Baby" are full of the dangers which usually accompany directions such as are there given, and this notwithstanding the caution against treating the

disease and not the child. But as, in spite of some peculiar punctuation, it seems that these were written by a "London" physician, it is perhaps irreverent to offer this criticism. To him, we suppose, must also be credited the display of erudition in the closing sentence of the book. As the volume is intended for popular use, his excellent aphorism would have been none the less forcible had he given it in English, so that all mothers and nurses might have understood it.

Mrs. Hewer is not quite logical in her observations about Nature's indications for weaning, and she pays too little regard to the fact that many mothers with the best intentions are wholly incapable, or only very partially capable, of nursing their offspring.

But these slight blemishes do not detract from the general merits of Mrs. Hewer's excellent little book. Perhaps her most useful sentence is this: "Infants' stomachs need rest." Printed on a card, and kept prominently before a distracted mother or a fussy nurse, it might save an unfortunate baby many an uncomfortable pang.

We were specially pleased with the chapter on "Baby's Nurse."

The Directory of Second-hand Booksellers and List of Public Libraries, British and Foreign. Edited by JAMES CLEGG. Rochdale: JAMES CLEGG. 1891.

This book has been much improved since we noticed the previous issue, in September, 1889, although the deficiencies to which we then called attention have not been wholly supplied. Bristol, although identified from the beginning with the Free Library movement, does not appear in the list of Municipal Free Libraries. We should like to see an annual issue of the work, and the advertisements all kept together either at the beginning or the end.

Fever: its Pathology and Treatment by Antipyretics. By HOBART AMORY HARE, M.D., B.Sc. Pp. 166. Philadelphia: F. A. DAVIS. 1891.

This book, which gained the Boylston Prize at Harvard University in 1890, gives a useful account of the modern antipyretics—antipyrin, antifebrin, thallin, phenacetin, and salicylic acid—and of the physiological and clinical observations upon which their administration is based. We think

the author would have done well to have retained the original title of the essay; namely, "The Uses and Values of Antipyretics," as the subject of fever is dismissed very briefly, and no serious attempt is made to discuss its pathology in an adequate manner. Dr. Hare has himself conducted many calorimetric experiments with these drugs. Some of his results have been adversely criticised by Prof. Wood, and he here defends them. He states clearly and impartially the researches, clinical and experimental, of different authors; so that the reader is enabled to estimate the value of the evidence upon which the conclusions arrived at are based. While rightly pointing out that in using antipyretics we treat a symptom and not the specific process, he hardly brings out sufficiently clearly the definite object which is held in view in the direct treatment of excessive or long-continued pyrexia; namely, to prevent the deleterious action of such pyrexia on muscular and glandular tissue. Antipyrin is given the first place, both as an antipyretic and an analgesic; personally we should give antifebrin or phenacetin the preference as antipyretics, whilst allowing that antipyrin is the most efficient analgesic. The author thinks that thallin has been undeservedly neglected; but the reason surely is, that it has been found to be neither so safe nor so efficient as the others. The book contains much information in a convenient form for reference; and now that these drugs have come into general use, such an account of their pharmacology and therapeutic application as is here given will doubtless be found of service.

A Manual of Diseases of the Nose and Throat, including the Nose, Naso-pharynx, Pharynx, and Larynx. By PROCTER S. HUTCHINSON, M.R.C.S. London: H. K. LEWIS. 1891.

In the preface to this book the writer acknowledges his indebtedness to numerous authors, of whom he enumerates three, for giving him the ideas which he has put into his work. We cannot help feeling that if he had left it to us to read the writings of the many excellent specialists who have given us the results of years of observation and experience gained from their patients, it would have been better than for him to attempt to help us by putting into our hands the work under review.

There does not appear to us to be any room on our shelves for such a book, seeing that we already possess so much litera-

ture on the subject from the pens of both specialists and general physicians and surgeons, and we do not believe that it is always useful to boil down several books into one small Manual merely to secure conciseness; and there is little or nothing of an original character in this effort of the author. It is, on the whole, well illustrated, some of the illustrations being old friends; but a few of the drawings might have been omitted.

Elements of Practical Medicine. By ALFRED H. CARTER, M.D. Sixth Edition. London: H. K. LEWIS. 1891.

This is a new edition, carefully and closely revised, of Dr. Carter's well-known book. The author has received the assistance of Dr. G. F. Crooke and Mr. Malcolm Morris in the preparation of the sections on General Pathology and Diseases of the Skin respectively. The book seems to be well brought up to date, and the fact of its reaching a sixth edition is a sufficient testimonial to its usefulness.

Notes on Preparations for the Sick.

Malted Milk. Dry Extract of Malt.—MALTED MILK Co., London.

Malted Milk is another of the many useful additions to the dietary of the sick. It has only to be dissolved in warm water; no cooking is required, no milk need be added; it is partially predigested, and it does not contain starch. Its flavour is excellent. For delicate infants, who cannot digest ordinary milk, and in many conditions of acute disease or weak digestion, this easily-assimilated and nutritious food should be invaluable.

The **Dry Extract of Malt** has the following advantages over the liquid extracts. It will not change or ferment in hot weather, and can be carried or kept on hand with greater safety and convenience. It can also be taken with greater ease, dissolved in quantities to suit the taste, and may be used in many ways not possible with a liquid extract. It is more palatable to the sick and to children, and has less the appearance of medicine. It contains all the natural salts of the grain in a soluble form combined with the sugar of the malt. It may be dissolved in milk or water, or mingled with any food. It will take the place of ordinary sugar in any mixture or emulsion.

Granular Effervescent Exalgine (gr. ij. in ʒj). Granular Effervescent Sodæ Sulph. Granular Effervescent Magnes. Sulph.—G. T. TURNER, Clifton.

We have received the above preparations of our old and well-tried Epsom and Glauber's salts, and of the more modern analgesic exalgine. The saline aperients in effervescing form are in every-day use, and need no commendation; the sulphates are likely to compete successfully with the effervescing citrates.

The **Effervescing Exalgine** is a useful preparation, and may be safely given in teaspoonful doses for several successive hours until the wished-for relief is secured.

Upjohn's Friable Pills.—THE UPJOHN PILL AND GRANULE Co., Kalamazoo, Mich., U.S.A.

Messrs. Hodder & Co., the local agents, have sent us samples of these pills, concerning which the manufacturers write:

"To overcome the objections to both gelatine capsules and coated mass pills, and produce a means of administration which insures the liberation and solution of the powdered drugs while still in the stomach, and at the same time entirely obviate the tendency to become hard and worthless by age, has been a matter that has received a vast amount of personal detailed attention and study from us. To accomplish our aim, we have devised a method of pill-making which entirely does away with the necessity of either excipient or moisture as a part of the pill; the dry powdered drug is thoroughly protected by a thin and extremely soluble coating of sugar which rapidly dissolves when taken into the stomach, leaving the enclosed powder in the same condition for solution and absorption as when administered in powdered form."

Pill-making has reached such a degree of perfection that it is difficult to find sufficient scope for utilising all the excellent materials provided. In fact, it will be necessary to cultivate prophylactic treatment, as for instance that for influenza, and administer pills to those in good health. No one could fail to appreciate the excellence of manufacture of these, the latest improvment in pill manufacture, and we have found them to be as efficient as they are inviting. Their friable and powdery condition is easily demonstrated by

simply crushing them beneath the thumb. The ingredients of a pill thus made must be ready for immediate absorption upon their arrival in the stomach.

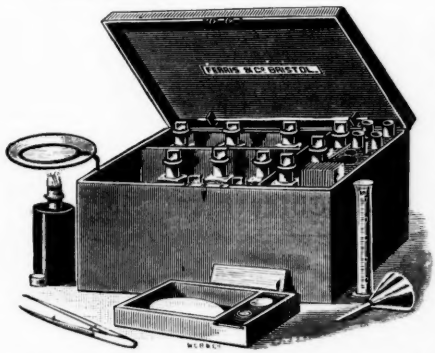
Molfa Soap.—DINNEFORD & Co., London.

Juvenia Toilet Soap. Juvenia Cream.—F. S. CLEAVER & SONS, London.

The manufacture of **Molfa Soap** is carried on under the supervision of Dr. B. H. Paul, great care being taken to regulate its composition and—by carefully excluding an excess of alkali, essential oils and colouring matter, which make even good soaps injurious to the skin—to produce a perfect soap. We think the manufacturers have fully accomplished the object in view.

The makers of the **Juvenia Soap** and **Cream** have also been most anxious to reach perfection, and think they have succeeded. The preparations are excellent, requiring only to be known to win favour, it being intended that the soap shall be used by day, and the cream at night.

Box containing Complete Apparatus for Clinical Detection of Micro-organisms in Blood, Sputum, and Urine.



Dr. J. MICHELL CLARKE writes: "It has occurred to me in the course of ordinary work that it would be very convenient—especially for those engaged in hospital practice—to have in a small compass and handy form all the materials necessary for the staining of micro-organisms in the excretions and in the blood. When the reagents are not thus gathered together, there is often much

time wasted in finding the particular ones required for a given investigation.

"At my suggestion, Messrs. Ferris & Co., of Bristol, have devised a small box, which contains, conveniently arranged, the materials most commonly required. The box is of small size, so as to be easily carried about.

"Briefly, it contains the following: Ziehl-Neelsen fluid, with solution of nitric acid for decolourising, and methylene blue solution for ground stain (tubercle bacilli); the materials for making the Weigert-Ehrlich fluid, which requires to be freshly made, and is one of the most generally useful staining fluids; Gram's solution of iodine and iodide of potash for use with the Weigert-Ehrlich fluid, and a solution of acetic acid (1—5) for use with the same staining fluid for the examination of blood after Günther's method; the methylene-blue is also very useful as a general stain for micro-organisms. The box also contains bottles of distilled water, absolute alcohol, and Canada balsam dissolved in xylol; vesuvin and Bismarck-brown in powder, to be dissolved in water as required for use; needles, pipettes, glass rod, forceps, glass measure of 10 c.c. capacity; funnel and filter papers, watch-glasses, test tubes, microscopic slides, and cover-glasses. There is a spirit-lamp and a box with close-fitting cover, in which the cover-glasses can be left to dry. A support for carrying a watch-glass above the lamp can be pushed out when the box is open. There is an extra bottle, which has been purposely left empty for the addition of any particular fluid that the owner may desire in addition to those enumerated above.

"I think that the box contains everything that is ordinarily required, and will be found a great convenience for the purposes for which it is intended. The box, fittings, and bottles are strongly made, and arranged so as to be portable and to bear carrying about without injury."

Bristol Medico-Chirurgical Society.

April 8th, 1891.

Mr. S. H. SWAYNE, President, in the Chair.

Dr. HARRISON exhibited a man aged 67, who was the subject of lichen ruber. The disease appeared to follow a chill, and was first noticed as red spots on the chest, gradually spreading to the back and limbs: none came on the face, and very few on the neck. They varied from an eighth of an inch to an inch in diameter; the

surface was smooth and shining; they were slightly raised above the skin-level, and were round, polygonal, or squarish. There was no history or suspicion of syphilis.

Dr. PROWSE brought before the Society two cases of tumour of the pons (which will be published in full in the September number), and also the case of a young woman aged 19, who was admitted to the Infirmary on January 7th, 1891, and died on January 12th. There was a history of cyanosis and dyspnœa for some years; the legs had been œdematous for three months. The apex-beat was displaced to the left, and there was epigastric pulsation, presystolic bruit, and reduplicated first sound. Hæmoptysis supervened, and the dyspnœa became so urgent that it was decided to aspirate the right ventricle. This was accordingly done, and twelve ounces of blood withdrawn with great relief. A few hours later, however, the distress was as great as before, and death occurred rather suddenly. At the *post mortem* examination the mitral orifice was found greatly stenosed.

Mr. PICKERING read notes of two cases of septic thrombosis of the lateral sinus. (These will be published in full in September.)

Dr. EDGEWORTH gave an account of the chief phenomena of hypnosis, and subsequently demonstrated these on a boy. He first explained the methods used to produce the hypnotic state, its various stages, and the alterations which take place (independently of suggestion) in voluntary movements, sensation and memory. He then stated the results of hypnotic and post-hypnotic suggestion on these faculties. These phenomena were illustrated on the subject. A discussion followed the demonstration.

May 13th, 1891.

Mr. S. H. SWAYNE, President, in the Chair.

Votes of thanks were passed to the British Medical Association and to R. B. Ruddock, Esq., for their generous and important gifts to the Library of the Society.

Dr. WATSON WILLIAMS was requested and consented to act as delegate for the Society at the Congress for the Study of Tuberculosis, to be held in Paris in July next.

Dr. MICHELL CLARKE read a short account of, and showed specimens from, three cases. (1) From a patient who died in the Hospital, under Mr. Dobson's care, from gangrene of the left foot and lower part of leg. She had left hemiplegia. There was no rheumatic history, and no murmur could be detected over the heart. At the *post mortem* examination, a large thrombus was found obstructing the abdominal aorta at its bifurcation. There were clots also in both common and external iliacs, and the right middle cerebral artery was blocked by an embolus; there were several infarcts in the left lung and kidney. The right lung was completely collapsed, apparently as a result of former pleuritic effusion. The mitral orifice only admitted the tip of the index-finger. The right cavities and left auricle were filled with clot. (2) Specimens from a case in which an old patch of softening had left a small cyst in the neighbourhood of the

posterior part of the right internal capsule. This had caused left hemiplegia and hemianæsthesia. The symptoms pointed to vascular obstruction from thrombosis. The man died from a large fresh hemorrhage from the lenticulo-striate artery. He was the subject of Bright's disease. (3) Specimen of duodenal ulcer, the base of which was adherent to, and formed by, the gall-bladder. The latter contained cholesterin stones. There were no symptoms caused by the ulcer.

Dr. MARKHAM SKERRITT showed (1) Portion of a sarcoma of the right lung, which weighed 164 ounces, from a lad whose left thigh had been amputated for similar disease a year previously. The growth simulated some of the physical signs of extensive effusion, *e.g.* displacing heart, etc. It also pushed the diaphragm down three inches below the ribs, and could, therefore, be plainly felt in the left hypochondriac region. (2) A tumour of the right kidney, which microscopical examination showed to be an epithelioma with typical "nests" and penetrating columns of cells. The growth appeared to start from the neighbourhood of a calculus which obstructed the ureter about three inches below the pelvis. The symptoms had lasted five months.

Mr. C. A. MORTON showed (1) A specimen of syringo-myelocele. The cavity was directly continuous with the central canal of the cord above; below, the cord divided into two hollow parts. Nerves could be traced in the walls of the sac. Mr. Morton commented on the rarity of this condition of division of the cord. (2) The bones of an infant, the ends of which showed peculiar changes, probably syphilitic in nature. The epiphyses were separated.

Dr. GEORGE PARKER exhibited an aneurism, the size of a hazel-nut, situated on the basilar artery at its upper part. The case was remarkable from the complete absence of any localising symptoms. No cause for its occurrence was ascertained.

G. MUNRO SMITH, *Hon. Sec.*

Virchow Testimonial Fund.

On the 13th of October, 1891, when Professor Rudolph Virchow celebrates his 70th birthday, it is proposed to present him with a testimonial in recognition of his services to Medical Science. For the United Kingdom a strong Committee has been formed, with Sir James Paget as Chairman, Dr. Lauder Brunton as Treasurer, and Dr. Felix Semon and Mr. Victor Horsley as Secretaries.

Dr. Markham Skerritt, who represents this neighbourhood on the Committee, will be happy to afford any information on the subject, and to receive subscriptions.

SCRAPS

PICKED UP BY THE ASSISTANT-EDITOR.

A Clear Case.—"When a man dies suddenly without having been attended by a doctor," says a popular guide to the law, "the coroner has to be called in, and an inquest held to ascertain the cause of death. But," adds the writer, "when he dies after having been attended by a doctor, then everybody knows why he died, and an inquest is not necessary."

Two Views of the Matter.—Dr. Murdoch Cameron prefaces a paper in the *British Medical Journal* on "The Relief of Labour with Impaction by Abdominal Section" by saying that with the improved methods of operating it is now quite possible in such cases to save both mother and child. And he quotes, as one view of the dreadful alternative formerly presented by craniotomy, the saying of Napoleon, who, when appealed to by Dubois, replied: "Treat the Empress as you would a shopkeeper's wife in the Rue St. Martin; but if one life must be lost, by all means save the mother." Dr. Cameron adds: "In marked contrast to him we had Henry VIII., who, when thus questioned before the birth of his son Edward, exclaimed: 'Save the child by all means, for other wives can be easily found.'"

Medical Ignorance.—The *Medical News* says: "The following clipping from the Elk Hart (Indiana) *Review* has been sent to this office: One of our physicians recently received the following letter from a country physician (?): 'Dear dock I hav a pashunt whos phisicol sines shoes that the windpipe has ulcarated of, and his lung have drop intoo his stumick, he is unabel to swoller and I feer his stumick tube is gon. I hav giv hym evry thing without efeckt. his father is welthy Onerable and influenshial. he is an activ membber off the M.E Chirsch and god nose I dont want too loose hym. what shal I due. ans buy returne male. yours in neede.'"

Commenting on this letter, the *British Medical Journal* says: "The diagnosis matches the spelling as perfectly as if by some Leibnitzian *harmonia praestabilita* they had been made for each other. If 'style is the man,' what an ornament to the profession must the author of this edifying document be!"

"A Surgeon."—Bishop Earle, whose "Character" of a physician was given in the *Journal* for March, also drew a picture of the surgeon of his day, whom he described as:—

"One that has ſome buſineſſe about his Building or little houſe of man, whereof Nature is as it were the Tyler, and hee the Playſterer. It is ofter out of reparations, then an old Parſonage, and then he is ſet on worke to patch it againe. Hee deales moſt with broken Commodities, as a broken Head, or a mangled face, and his gaines are very ill got, for he liues by the hurts of the Common-wealth. He differs from a Phyſitian as a ſore do's from a diſeaſe, or the ſicke from thoſe that are not whole, the one diſtempers you within, the other bliſters you without. He complaines of the decay of Valour in theſe daies, and ſighes for that flashing Age of Sword and Buckler; and thinkes the Law againſt Duels, was made meerly to wound his Vocation. Hee had beene long ſince vndone, if the charitie of the Stewes had not relieued him, from whom he ha's his Tribute as duely as the Pope, or a wind-fall ſometimes from a Tauerne, if a quart Pot hit right. The rareneſſe of his cuſtome mak[e]s him pitti-

leſſe when it comes: and he holds a Patient longer than our Courts a Cauſe. Hee tels you what danger you had beene in if he had ſtaide but a minute longer, and though it bee but a prickt finger, hee makes of it much matter. He is a reaſonable cleanely man, conſidering the Scabs hee ha's to deale with, and your fineſt Ladies now and then are beholding to him for their beſt dreſſings. Hee curſes old Gentlewomen, and their charity that mak[e]s his Trade their Almes: but his enuie is neuer ſtir'd so much as when Gentlemen goe ouer to fight vpon Calice Sands, whom hee wishes drown'd ere they come there, rather then the French ſhal get his Cuſtome."

William Harvey.—The recent gift of a portrait of William Harvey to the reading-room of the Bristol Medico-Chirurgical Society should serve to remind us how much is to be learned from the example of such a philosophic student. Some points mentioned by one of his biographers may be quoted, and I here condense them:

In 1615, at the age of thirty-seven, Harvey was appointed one of the lecturers at the College of Physicians, and it was in the course of these lectures that he first publicly announced his new doctrines. But though he taught his opinions on this subject *vivâ voce* to his auditors, he continued assiduously to repeat his experiments and verify his observations for many years, before he ventured to commit them to the press. Fabricius ab Aquapendente had taught him, at Padua, that the use of the valves of the veins was to moderate the flow of blood from their trunks into their branches. Harvey more rationally and more obviously insisted that the valves were intended to facilitate the return of the blood to the heart. He demonstrated that the heart being excited to contract by the stimulus of the blood, that fluid is impelled through the arteries, and having served every purpose of secretion and nourishment, returns by the veins to recommence its circulation. Great, however, as was the discovery of Harvey, his doctrine was not so complete and perfect in all its parts as it has since been rendered by the labours of later physiologists. Harvey's work cost him twenty-six years to bring it to maturity. His discovery was ill received; most persons opposed it, others said it was old, very few agreed with him. He had, indeed, his admirers. Witness, for example, certain verses which were addressed "To the Incomparable Dr. Harvey, on his Book of the Motion of the Heart and Blood," in which these lines occur:—

> "There didst thou trace the blood, and first behold
> What dreams mistaken sages coined of old.
> For till thy Pegasus the fountain brake,
> The crimson blood was but a crimson lake,
> Which first from thee did tyde and motion gaine,
> And veins became its channel, not its chaine.
> With Drake and Ca'ndish hence thy bays are curl'd,
> Fam'd circulator of the lesser world."

But the epithet *circulator* in its Latin invidious signification (quack), was applied to him by many in derision, and his researches and discoveries were treated by his adversaries with contempt and reproach. To an intimate friend he himself complained that after his book of the *Circulation* came out he fell considerably in his practice, and it was believed by the vulgar that he was crack-brained. All his contemporary physicians were against his opinion, and envied him the fame he was likely to acquire by his discovery. That reputation he did, however, ultimately enjoy.

About twenty-five years after the publication of his system, it was received in all the universities of the world; and Hobbes has observed that Harvey was the only man, perhaps, who ever lived to see his own doctrine established in his lifetime. Harvey's other great work on the *Generation of Animals* cost him almost as much labour as his work on the *Circulation*.